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Rochester Institute of Technology

A Thesis submitted to the Faculty of the
College of Imaging Arts and Sciences
in candidacy for the degree of Master
of Fine Arts

Finding Yosemite: A Reflection on Conservation

By Jennifer Witkowski

November 1, 2007

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Abstract

Finding Yosemite: A Reflection on Conservation

Yosemite National Park has always been a National treasure of natural beauty, making it a popular tourist attraction by providing protection for unique geological formations, wildlife, and land of historic value. The parks mission is to provide recreation while educating and preserving the history and environment in which the park resides on. Recently, the mission of Yosemite National Park has been threatened by an increase in the number of people who visit the park annually and budget cuts that have a direct effect on the amount of resources the park has available to counteract the environmental impact of the rise of visitors. Each year, the number of visitors who attend Yosemite National Park rises dramatically, with the increase of attendance comes the increase of pollution, environmental degradation and overcrowding within the park.

Finding Yosemite was created as a tool of communication to help educate potential visitors about the increasing environmental problems that currently jeopardize the environment of the park. Through interactivity and imagery, the goal of this online resource is to improve the public's awareness of Yosemite's environmental conservation initiative while still encouraging positive visitation. With this knowledge, park visitors will be able to make environmentally smart decisions that have a direct impact on the parks ecosystem. Visitors can learn about specific conservational issues and protection policies that the park is currently implementing. By exploring a map of the park, users can

- Learn about conservational issues in the topics of wildlife, geology and vegetation.

- Learn the ecological importance of specific wildlife, plants and geological features and how their survival impacts the parks ecosystem.

- Learn about current and future protection policies that the park is implementing

- View photos about each conservational topic

- Learn about the founding of Yosemite National Park and it's conservational history

Keywords: Conservation, Ecosystem threats, Glaciated landscape, Interactive Multimedia, National Parks Service, Pollution, Technology enhanced teaching, Topography, Yosemite National Park

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Introduction

A. Acknowledgements

I would like to thank the people who made this project possible and a great success. First and foremost, I'd like to thank my family for their support, inspiration and their patience. I would also like to thank my chief advisor, professor Chris Jackson for his guidance, help and patience. I would not have been able to complete my project without his suggestions and programming help. I'd also like to thank my associate advisors; Marla Schweppe and Elizabeth Hane for their help and direction for making this project a great success.

Special thanks go out to my sister Andrea and my brother-in-law Jeremy for taking the time to edit written content and provide critical feedback. Their suggestions and expertise helped make this project a great success and I could not have completed it without their critical eye. I would also like to thank my Aunt Michelle for giving me an opportunity to travel to Yosemite. The trip inspired my thesis topic and the completed interactive project. I would also like to thank her for the use of several amazing photographs that she took, and for participating in several usability tests. Her thoughts and suggestions have helped refine my project to its final completion. Finally, I'd like to thank the National Parks Service and the Park Rangers of Yosemite National Park for assisting me in my research providing external resources and answering several questions.

B. An Inspirational Trip

During the spring of 2006, I came across several periodicals that featured articles about various National Parks within the United States. After reading through a few of these articles, I had come to the conclusion that I would focus on the topic of the National Parks for my thesis project. I researched various aspects such as tourism, nature, bureaucratic structure, and the historical foundation of the park system itself. I decided to focus on an interactive guide to Yosemite National Park. The guide would educate users about hiking trails, scenic sights, popular tourist spots, and different geological features. The main goal would be to promote park visitation and tourism and to provide a visual interactive guide for visitors to learn about the park.

In August of 2006, I drove across the country to stay for a week in Yosemite National Park to gather research about the park and photographs for my thesis. After the first few days of running into traffic jams

and large gatherings at popular trails and scenic pull offs, I began to get frustrated. I did not expect the park to be as crowded as it was, and it completely changed my experience at the park. Honking horns and crowds obscuring my view drowned out open air, nature's sounds and scenery. It wasn't until I took a day hike up into the Sierra Nevada that I was able to experience a crowdless view, hear the rustling of the trees, and experience the true nature of Yosemite.

The days following, I found myself gathering more information about park conservation and preservation than on park tourism. I also took interest in various projects in progress that would help reduce park pollution and protect the natural landscape from the human footprint. By observing how visitors experience Yosemite, I took an interest in their actions within the park. Many hikers walked off trails into territory that was clearly marked forbidden, picnickers carelessly left trash on the ground, and families drove in between scenic spots, even though it was a quick ten-minute walk away. It was not until I went on a Ranger guided tour that I realized how important park conservation was for the survival of Yosemite. When he asked how many were aware of the conservational issues that Yosemite currently faced, not one person raised their hand. There were about fifty people on our tour.

After my experience at Yosemite National Park and upon returning home from my trip, I decided to focus my thesis more towards park conservation than park visitation. I felt that if people could be better informed about conservational issues, they could make smarter decisions when visiting and help conserve the park for future generations to enjoy.

Research

When visiting Yosemite, I had gathered a large amount of photographs and some small documents on conservation. Once the proposal was approved, the next step was to conduct extensive research on the issue to narrow down the vast topic of conservation. Due to budget cuts and a decreased number in park staff, the National Parks Service could do little to aid in the research process. Most of the research came from the National Parks website and other organizations affiliated with park conservation. Although a sufficient effort was made, I was not granted permission to talk with a park worker about the conservational efforts within Yosemite National Park.

A. Contacting the National Parks Service

The first step in my research was trying to make contact with the National Parks Service. The main research goal was to have a staff member who would be able to guide the research in the right direction and help in the process of narrowing down the topic of park conservation. Several attempts were made to contact the National Parks Service through email before making phone calls to Harpers Ferry Research Center, the National Park's main archive and research hub. After leaving several messages with numerous people including park archivists and researchers, a different alternative to researching was considered. A month had passed and I did not have direct contact with the National Parks Service. At this time, it was decided to formulate a plan that did not include direct contact with the National Parks. About a month and a half after the first effort to contact NPS, I received an email from a researcher at Harpers Ferry Center stating that they did not have the resources and staff to help in the research of my thesis. They gave me several organizations that might be able to give research guidance. Shortly after this email, other resources were used to gather information needed for my thesis.

B. The Research Process

The National Parks Service has a large amount of resources available on-line through the park website. It was here where researching began, gathering published reports and documents on park conservation within Yosemite National Park. The park website also provides resources and links to accredited organizations that support the National Parks and park conservation. From the National Parks website, research was collected from other organizations such as the Yosemite Association, the National Parks Conservation Association and the Sierra Club. Several organizations suggested various books by accredited authors, photographers, and websites that featured policies and park management documents that would help in the creation of the project. I also began to read several guide books by authors suggested from the Yosemite National Park website. These books included information on birds, plants,

animals, and geology within Yosemite National Park. The books provided informational resources needed to narrow down endangered species within the park and match them with park policies created to protect the Yosemite environment.

C. Gathering Historic Materials

Besides researching current conservational issues within Yosemite National Park, I also began to assemble information on past policies and the history of park conservation. The National Parks website had a large amount of information of the founding of the Park's System and the creation of Yosemite National Park. Permission was also granted through the Harpers Ferry Center to use about a dozen historic photographs connected to Yosemite. Having access to these resources was a great advantage, but it was still necessary to visit the National Archive in Washington DC to obtain copies of additional photographs and documents that could possibly be used in the historic section of my thesis. Access to the full archive was not available on the internet, and the visit would open the opportunity to conduct some additional research on the historic aspects of park promotion. After two days researching at the National Archive, permission was granted to use over fifty historic images depicting the subjects of park foundation, conservation, recreation, and promotional materials.

D. Research Organization

During the process of collecting data, the organization of content into a manner where it could be easily identifiable and accessed became advantageous. Several hundred jpegs of photographs on various subjects, pdfs of park management policies, and printed documents and articles were collected throughout the process. Organizing the jpegs into folders labeled with the subject in which the photo reflected allowed the image to be accessed quickly without having to sort through a large number of photographs. Organization topics included animals, plants, geology, park visitation, and high traffic areas. Each jpeg was labeled specific to the photograph and the last name of the photographer. An excel document was also created which listed each photograph, where it came from, if it was rights managed, and the photographer and date it was taken. This excel document provided a valuable resource when labeling each photo and contacting photographers for permissions.

A folder structure was also used when organizing several downloaded pdf documents. Each document was several hundred pages in size, so printing was an unreasonable option. The folders were labeled according to the subject of the document. Topics included conservation, park management, park studies, and policies. Each document was labeled according to the topic and the year it was released. An excel document was also created which listed information so each document could be easily identified. A table

of contents of each document was included in the excel document so information could be quickly accessed without browsing through several hundred pages.

Printed documents and articles were organized into binders. Each binder was separated into sections including wildlife, park policies, vegetation and geology. These sections contained newspaper and magazine articles on the topic, printed information from websites, and copied pages from books. Each document was labeled according the date in which the article appeared, the website or book the article was copied from, and a numbered scale that rated the articles importance to the topic. If the document had a number range from 8 to 10, the information was directly related and would be reviewed when writing content. Documents ranging from 4-10 related somewhat to my topic, and if information was lacking, the documents information might be included in the content writing process. Any document below a 4 was for research purposes only and the information was not directly related to my topic, but might have helped in researching other aspects of the thesis. This numbering system saved time by quickly identifying which documents should be reviewed before beginning the process of content writing.

Design

It took several weeks and numerous compositions before developing a template design that worked well with the thesis topic. By creating a basic template, the same layout and navigation could be used throughout the entire piece. The design process started by browsing websites and design magazines to gather ideas on what had been done and how different interfaces worked. The next step was to gather textures and design elements that could be experimented with when designing the interface. Finally, I began rough pencil sketches that evolved into full compositions in Photoshop. The initial design was more time consuming and difficult than anticipated, but the hard work was rewarding in terms of the final project.

A. Creating the Right Design

After reading through the research that was gathered, a list was compiled of design elements that would benefit the project. An interactive map was a necessity and would be used as a navigational tool in the explore section, and a timeline would be included in the history section as a way to browse through the different photographs and historic events. Photography was used as a primary form of communication when exploring different topics. The photographs taken on the trip to Yosemite provided the perfect vehicle for visuals when explaining the situation and provided clear examples of the environmental impact of visitors on the park.

When the list was complete, choosing a color palette was the next logical step. The colors needed to work well with the design elements and communicate the topic of conservation effectively. A natural color palette of beige, green and blue was immediately targeted due to the colors representation of the earth and sky. The color and design elements were first brought together on the introductory page to create a master template. The goal was to implement at least five different compositions that varied in layout and color. In the end, twelve were created before producing a design that worked well and could be used successfully as a template.

Even though each design differed in layout and color, they all had a few elements in common. Callouts were used to direct users to the main topics, and a short quote was used as an introductory animation when one first visits the application. I also wanted to include an image that reflected Yosemite National Park, and had chosen a watercolor outline of the famous Half Dome. Several compositions were created with the same layout but switched colors for experimentation. A few design elements such as icons and textures were also added to see if they would work cohesively with the design. Some worked well, others did not. After the tenth composition, colors were scrapped along with images and icons that had been

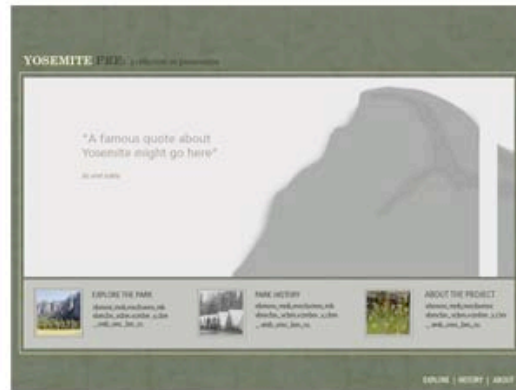
used throughout the entire process. The core design elements were not working well together and a fresh start was needed.

Focusing on a new set of designs towards a minimal layout, color palettes were changed from five or six down to three. Dark brown worked well as a background color and shifted attention towards the main interface screen. Bright green was used as a main color throughout the interface and was highlighted with a muted blue. The main image for the introductory screen was also reworked in bright greens to reflect a photographic collage of the park. Icons and callouts were erased or reworked into secondary elements that focused more attention towards the content and less towards the actual image. To create an identity element, the main title of the piece was also redesigned. A main logo was incorporated, using the image of a compass next to the main header to play on the word finding in the title while emphasizing the exploring aspect of my thesis.

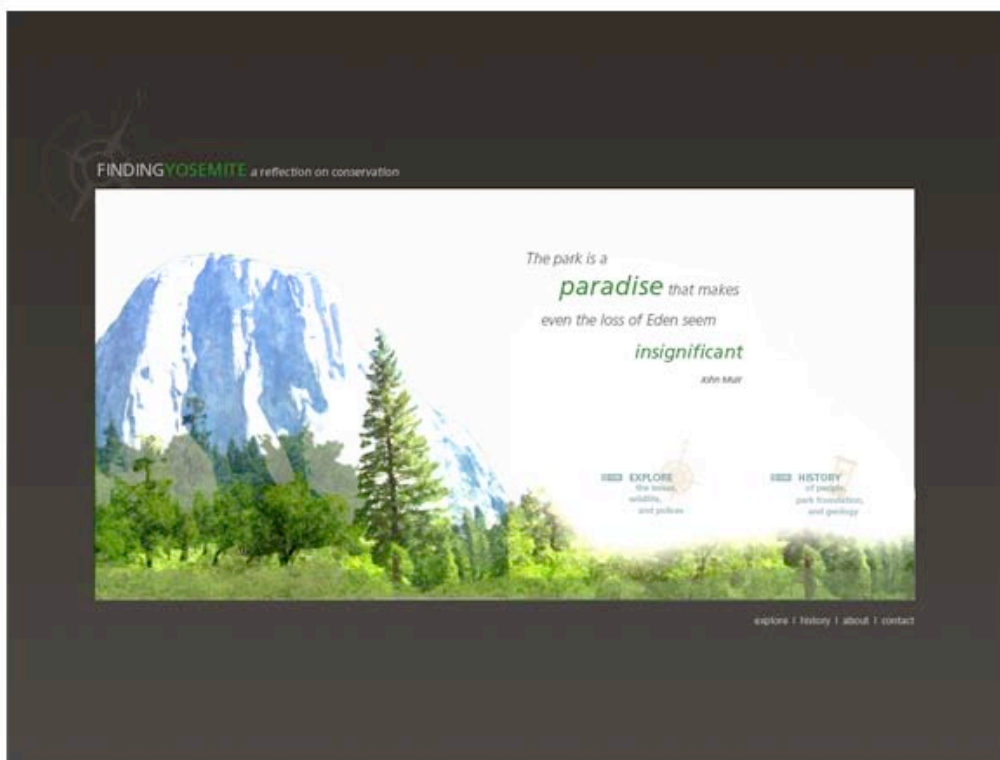
Overall, the new design seemed to work well with the material, highlighting photos and content needed to strongly communicate the topic of park conservation. The final few compositions focused on refining the design and playing around with different types of callouts. A small problem of competition between the introductory image, the quote and the callouts permitted for a few final revisions. All three elements created a crowded screen. After comparing the designs, simple text callouts were implemented creating a clean interface with fewer images.

A happy accident that occurred with the new design included the title and the new introductory image. Both design elements were used to create an identity for the thesis. The title and image was used in print and collateral material promoting my thesis. The introductory image was created in a high-resolution canvas so preparing it for a printed piece did not cause any problems. The compass was also a high-resolution image and the text for the title was created in Adobe Illustrator, which made using the elements for different identity pieces, a smooth and easy process. Green and brown colors that were chosen for the interface were also used as highlight colors throughout posters, postcards and brochures.

B. Screen Shots



Rejected compositions of the interface design



Final interface design

C. Typography

During the early stages of the design process, several compositions that were created experimented with different fonts. Originally, the vision included a serif typeface for the main title, and a sans serif font for the short caption that would accompany it. However, the final design called for a simple, classic type solution and changed to one sans serif font. To emphasize the two word main title, two different colors were used for each word, and the space was deleted between them. Not only did the final solution work well with the interface, but it was also the same font face used in the National Parks identity system. The same typeface is used throughout the entire interface for consistency, and experimentation between different weights created contrast between titles, navigation and content text. Several compositions were also assembled with variations in font size and color to help in the process of choosing font characteristics that were easily readable. Two colors tested the best overall, a dark charcoal gray text on a white background, and a light beige text on a dark background. Both solutions were incorporated throughout the thesis piece.

D. Navigation

The finished multimedia piece would be targeted to an audience that varied in computer knowledge. Keeping this in mind, the navigation had to be intuitive and easy to use. The goal was to have the target audience navigate through the site with ease. Two tiers of navigation were implemented, a main navigation and a local navigation. The main navigation allows users to navigate to the main sections at any given time. A home button gives users the option to click back to the introduction page at any time. The local navigation allows users to navigate through each main section. Earlier designs had used an icon-based navigation but after early testing, they proved to be confusing and the icons were not easily identifiable. Instead of spending time on revising icons, the navigation was changed to a text-based representation. This new text based navigation worked better with the overall interface composition, minimizing competition between images on the screen and created a simple navigation that users could easily identify and use. Instead of throwing away the icons all together, they were recycled as a secondary representation of the navigation. The icons appear as ghosted images behind text and correspond to each section.

Although the decision was to use a text-based navigation for the primary and secondary sections, there were places where icons worked better. Throughout the thesis piece, close buttons are represented as a standard square with an X through the middle. Writing the word close would interfere with the content and images that appeared on the screen, and was not necessarily needed. The square close box is universally recognized as a close button and is used throughout both Apple and Microsoft Windows based computers and applications.

Information Architecture

Before designing the Flash prototypes, I began organizing the research material into sections that would be used throughout the interactive piece. Although the investigation of content was a continuous process, I had an idea of what information should be included based on research that was already conducted. During the research process, ideas were formulated about the structure of major sections that would be included to help support the hypothesis and the overall thesis topic. Collected material was organized into major categories under possible main navigational topics. The subtopics were chosen based on the supportive research and objectives that were formulated during the proposal process. The method of choosing interactivity, content and images was influenced by the objectives. A major challenge during this process was trying to include recently found material that related to the topics but might not support the hypothesis statement. The material was evaluated against the objectives and the newly formed information architecture to determine if it should be included in the overall interactive piece.

A. Organizing Material - The Index Card Method

Organizing the material into singular categories was challenging. Most of the material crossed over into several sections, which made it difficult to determine what should go where. In order to alleviate some of the confusion that this caused, index cards were used as a tool for organization. Each index card had a main subject written on it, for example, wildlife, Half Dome or hiking. The cards were then organized and reorganized into an informational web that would best support the thesis topic and would not confuse readers. It took several days of shuffling cards to achieve a solid information architecture that would work well with the content gathered. Once the index cards were in their final resting place, supportive material was introduced such as interactivity, sound and images. Post-it notes provided the perfect tool for arranging the secondary material under its supportive index card. The small paper notes were easy to move around and did not interfere with the main index card structure. The final product was a large visual of organized information that could be easily edited.

When I felt confident that the information was in the correct sequence in the grid, a formal information architectural grid was then created in Adobe Illustrator. The grid itself was a simple line structure that boxed in main topics and sub-categories. Interactivity and other supportive material was omitted but was included in another document that listed in detail what supportive material would exist, where it would go and what it would do. After finalizing the informational architectural structure, I was able to begin the process of forming my prototypes.

B. Objectives

Due to the vast amount of information that was assembled, objectives were created for each main section to help organize and limit the content. Narrowing topics into a limited number of objectives was a difficult task. However, it was a main step in designing the interactive elements. The objectives for the two main sections, explore and history are outlined below.

Explore

Users will:

- Explore an interactive map and learn the locations of wildlife and geological elements within Yosemite National Park.
- Learn about conservational threats and park policies that protect specific wildlife found within Yosemite National Park
- Learn related information about geological elements and conservational policies that will help protect them from pollutants and human interaction.
- Understand the environmental and human threats to vegetation that populate Yosemite National Park and conservational policies that help secure their growth within the park
- Recognize and understand the consequences of the massive growth of park visitors and the shrinking park budget and how National Parks Service and different organizations are fighting the related negative effects.
- Explore different photographs of wildlife, vegetation, conservational issues and geological elements within Yosemite National Park.
- Learn about park management and how management policies can directly affect the issue at hand

History

Users will:

- Learn about the founding of the Yosemite National Park within the park system
- Understand negative actions that effect the environment within Yosemite National Park throughout time
- Learn about important historic people and their actions that benefited or hurt the environment within Yosemite National Park
- Explore conservational policies and issues that have plagued the park through history and their effects on the environment at present time
- Learn about the past roles of volunteers and environmental organizations and how they helped create Yosemite National Park to what it currently is in present time.

Multimedia Development

During the initial research and design phase, a plan was formulated on how to incorporate multimedia elements throughout the project. Originally, it was anticipated that an opportunity would arise to record video footage of park rangers and staff discussing environmental conservation within the park. However, due to cutbacks in staff, this would not be possible. Knowing that the bulk of the multimedia interaction would not be included, interactivity included in the project had to be reorganized or deleted all together. Goals were established when developing the user experience to help in the reshuffling of interactive elements throughout the project. They are as follows:

Limit screen text:

It has been observed and formally documented that users do not like to read a large amount of text on the screen. In order to keep the users engaged, text would only appear in small paragraphs and bullet points.

Communicate with visuals:

The main message and ideas would be communicated through photographs and illustrations to create a visually interesting experience. Text would be a supportive factor in communicating the message to the users.

Create an engaging interactive experience:

When envisioning the finished piece, interactivity was the main medium of communication. The purpose of the interactivity was to help support the content and create an engaging learning experience. By supporting the content with interactivity, users would be involved in the experience and could “explore” the information rather than read static text about the subject. Users would also obtain a greater understanding about the park when interacting with a map, illustrations and photos about the subject of park conservation.

Construct a user-friendly interface

Confusion and lack of direction are main reasons why users get frustrated with websites and interactive applications. Creating a clear, direct, simple interaction was an important objective so users could enjoy the interaction or experience/information and not spend the bulk of the time figuring out what to do or where they are in the project.

Produce supportive animations and transitions

Many websites and flash applications have visually pleasing animations and transitions, but do not support the overall subject or identity of the site itself. In other words, it was “visual fluff”.

Including animations and transitions that did not make sense would only confuse the user when put in context with the rest of the project. Every transition and animation would support an idea or content that was currently on the screen or about to appear.

Give the user control

By giving the users complete control on where and what they wanted to explore in the project, the experience would be different for each user. It also allows users to access certain information quickly, and for them to revisit the project at a later time to explore on a new set of topics that they might not have visited the first time.

A. Interaction Design

Brainstorming techniques were used before creating movement and interaction in Adobe Flash. Lists, diagrams and brief sketches were completed depicting what would happen and imagining how a user would interact in certain places. Accomplishing easy usability in an environment where users participated in the overall piece was essential when designing the interactivity. A main goal was to create an interactive environment where users could explore the content and learn about specific conservational topics through interaction and animation.

An important graphic in the design was a map where users could explore the different conservational topics in context with its location in the park. Originally it was sketched as a sectioned map that was divided into the four quadrants of north, south, east and west. Users would then click on a quadrant to view environmental issues in that area of the park. Although the solution had worked well and was simple to navigate, there was not enough user interaction with the map and the overall screen was too static. The quadrant idea was reworked to incorporate more interactivity with the map. Instead of users clicking on an area to view the topics, they would first click on a topic and a corresponding trail would appear. Users could use the mouse arrow to scroll around the map and click on icons to find out more information about the topic. For example, a viewer would click on wildlife to view the “wildlife trail” and then could click on icons relating to a specific wildlife species. Icons were strategically placed on the trail to the location where they could be found in the park. Not only was the map an interactive tool, but it also provided locations for specific plants, animals, and geological formations.

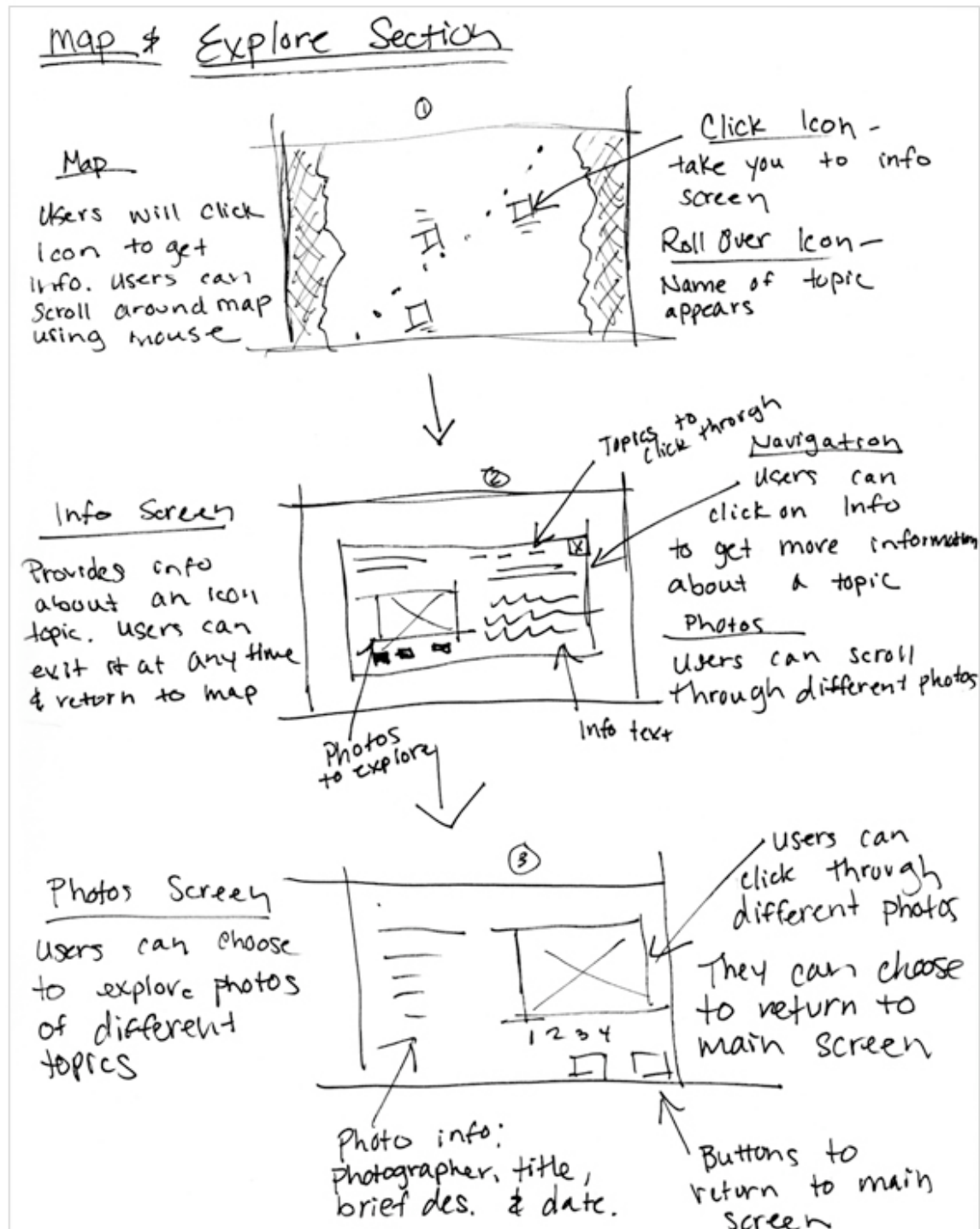
A minor problem that was encountered early in the design of the interactive map was enabling the viewers to form a sense of space to the size and location of Yosemite National Park. Due to the scrolling

capabilities of the map, the size had to be fairly large. Although this allowed users a more detailed visual of the park, they could never see the boundaries of the entire park or an overall view of a trail on the screen. Another problem was that users had little control over the scrolling capabilities during early user testing, and a frequent comment was that there was too much scrolling to move around the map. A solution for both problems was to create a zoom function. By allowing users to zoom in and out of the map, they could choose to view a small detailed section or the entire map on the screen. This also reduced scrolling and interaction time, allowing users to view all the clickable icons on the screen at once. If users did not want to spend a lot of time exploring the map, they could choose to zoom out of the map.

Another interactive piece in the project was a screen that appeared after an icon was clicked on the map. The first solution that was executed included a transition into an informational screen that took users away from the map. This worked well visually but created a disconnect with the map. A better solution was creating a popup panel over the map that kept the connection between the map trails and subject matter. The popup panel was smaller than the map and incorporated the map in the background. To exit and return to the map, users pressed the exit icon, allowing the panel to disappear and the background map to become the main graphic. Image maps were also used as interactive elements in the popup panel. To view additional photographs about the topic, users could click on corresponding thumbnails. The thumbnail would provide user feedback by highlighted state when roll over and when that photograph was being viewed.

For the history section of the project, a different interactive feel was used when compared to the explore section. The map represented present events and issues, and the history section represented the past. A common solution was to create a timeline interface where users could click on a date to view an event that occurred during that time. Most common timelines move from left to right. Due to the amount of information and images that was planned to be integrated, the timeline in the history section moved in a vertical direction from top to bottom, allowing more space for content. An opportunity arose to incorporate transitional movement with the vertical direction. When a user clicks on a date, the imagery and content moves in from the top or bottom of the screen creating a shuffling effect depending on where the date is in the vertical line up. This generated a reinforced visual on when the event took place in relation to the other events that happened through time. There were a few details that were incorporated throughout the history section to maximize usability. First, the corresponding date was integrated into the topic header to provide breadcrumbs and user feedback on where they currently were in the timeline. Also, the interface lacks an exit button, allowing less confusion and eliminating an unnecessary step on what and where to click to move forward or backward in the timeline. Both items provided an opportunity to design a clear and consistent interface that was intuitive and enjoyable for users to interact with.

Sketches of Interaction Design



B. Programming

As an interactive medium, *Finding Yosemite* was developed and animated in Flash. Due to the amount of content and updating, a dynamic approach to programming was chosen. Dynamic programming includes an organized XML file that controls the loading of the text and images. This allows the text and images to reside outside of the flash file and produces a smaller file size that is quicker to load. Having the images and content load dynamically into the file gave me the freedom to make quick updates without opening the flash file. This especially became advantageous as the thesis show approached when last minute changes and polishing the final piece became a daily task.

Animation and transitional movement are heavily controlled through code. This approach was used for easy updating and more control. Timeline animation is easier to produce but often can become confusing, especially with complex files. Timeline animation was used for smaller components such as button rollovers and menu animations.

A majority of the code used in the thesis project was modified from previous projects that were created earlier in the year. Some of the code was written from scratch without a reference file. It was difficult to program this project due to the amount of content and interactivity, however notes and reference files from Chris Jackson's programming classes were useful and would often give direction on how to program a certain aspect. Code was also adopted from Kirupa (www.kirupa.com) and referenced from tutorials on ActionScript.org (www.actionscript.org). Both websites were great references when having programming difficulties.

Dynamic loading of content and animation control allowed the file structure of *Finding Yosemite* to become less complex. A "start" file is considered the container in which all remaining files will load into, and was used as the home base for the thesis files. The remaining Flash files include the main sections of explore, history, contact and about. An xml file controls the content, and a file folder holds all the images that load into the different sections. Overall, the choices of files structure and dynamic loading aided in the compression of the Flash files and kept them at a small file size.

C. User Testing

User testing was implemented throughout the build out of the project. The chosen test group mirrored that of the target audience and included a variety of people whose computer skills varied from beginner to expert. A questionnaire was also created to help pinpoint functionality strengths and weaknesses, and was sent out during the mid point and final versions. Less formal observational testing was implemented throughout the creation process for individual interactive components. Minor changes in the interface and interaction were made based on results from the user test group.

Thesis Show

A. Preparation

To promote the individual thesis piece, it was decided to create postcards and an informational poster. Both collateral pieces used design elements from the thesis project to create consistency and an identity for *Finding Yosemite*. The informational poster included a brief description of the project to help viewers generate an idea of what the project was about before clicking through it. By providing a web and email address, the purpose of the postcards was to create a portable promotional piece that included contact information. Although both the postcards and poster took only a day to design and print, advanced planning and designing allowed extra time for printing problems.

To reinforce the visual aspect of *Finding Yosemite*, two large landscape photos that were taken while visiting the park were matted and hung on the wall. Two small photo albums were also included that contained dozens of photographs that were taken during the park visit. The goal was to have viewers flip through the photo books while waiting to interact with project, or provide a secondary visual element where viewers would flip through either before or after viewing the project.

B. Reaction

Overall, the designed space and collateral elements were a great success promoting the thesis piece. The visuals mounted on the wall helped draw people to the project space, and the photo books helped keep people interested while waiting to view the project. Many positive comments were received on the design of the postcards and poster design.

Generally, *Finding Yosemite* received a positive reaction. Viewers found the content intellectually stimulating and enjoyable. The interface was entertaining and the navigation was easy to use. Many viewers commented on how easy it was to navigate through the project and they enjoyed the photographs and interactive elements that were used throughout the project. Based on reactions and comments during the show, it was concluded that *Finding Yosemite* was a great success.

Conclusion

The success of Finding Yosemite can be contributed to the complete creative process that formulated an interactive piece that answers the problem statement of “Can an interactive website help educate the public about the conservational issues in Yosemite National Park?” A step-by-step method was implemented in order to create checkpoints that could measure the success and failures during the development of the final interactive piece. Steps included were researching and writing content, designing the interface look and feel, designing and programming interactivity, and producing collateral material. Based on user reactions, an interactive website was an effective solution to communicating the topic to the viewer. Communicating through the web, the information is widely available to the mass public, and could be accessed at any time. Interactivity engages the user and helps them obtain a better understanding about the parks mission, history and conservational problems that plague Yosemite National Park.

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Proposal

A. Problem Statement

Yosemite National Park was established in 1890. The goal of its establishment was to preserve the regions unique geological features and the surrounding environment for the general public to enjoy. Today, Yosemite is facing environmental problems that are directly related to the alarming increase numbers of people who visit the park annually. Currently, The National Parks Service is trying to improve this problem by releasing several reports that create a plan for reducing the pollution and population overcrowding over a set number of years. A main feature of the documents is to make the visiting public aware of the current degrading environment and how it is directly related their actions and decisions when visiting the park. An online resource can greatly aid in educating the public about Yosemite National Parks current environmental problems and what they can do to help improve the parks environment.

Contributing factors such as a shrinking budget and the growing number of visitors are directly affecting the resources that Yosemite National Park has to defeat the degrading environment. Yosemite is constantly reducing their staff due to lack of funds, and has greatly increased its dependence on volunteers and organizations to help educate the public on the park's pollution problems. The National Parks System has provided a small section on Yosemite's website dedicated to the parks environmental troubles, but the information is buried in site architecture and provides little content about specific problems. However, if an online resource that was solely dedicated to this issue was available to the public, it could increase the awareness of the issue and help educate them so that they could make environmentally smart decisions when visiting the park.

A website rich with interactivity and imagery shows great possibilities in educating the public on the environmental issues that plague Yosemite National Park. The information would be easily accessible and could be communicated to an infinite number of people. Interactive elements would help aid in the education of this topic so people could make informed decisions and take direct actions that would help in the improvement of the environment within Yosemite National Park.

This thesis will explore how an interactive online resource could help educate potential visitors and the general public on the environmental issues that currently trouble Yosemite National Park due to the massive increase of people who visit the park. It will focus on an audience that is old enough to make environmentally wise decisions, specifically young adults and adults, and will attempt to show how an

online resource can improve the environmental preservation goals of Yosemite National Park. Corresponding research on this topic will be introduced to support this thesis and validate the reasons why an online resource is an important communication tool that should be used in educating the general public about the preservation of Yosemite National Park.

B. Methodology

The main goal of my research project is to create an interactive website that will educate the general public and potential visitors about the current environmental status of Yosemite National Park while still promoting tourism within the park itself. This program will act as an aid to help the National Parks Service promote conservationism within Yosemite National Park, and help communicate the mission of preservation that the National Parks System has formed in order to save Yosemite's environment. The program's aim is to make a significant impact in educating the general public so that when they visit the park, they can make environmentally smart decisions that will help preserve the park for future generations to enjoy. When visiting the site, users will gain informational knowledge about the environmental problems Yosemite is currently facing along with information and travel tips that would be useful when visiting.

The program will be based in Adobe Flash and will focus on park preservation and tourism. As a non-linear structure, users can click through and choose which section they would like to get more information about. The program will immerse visitors by providing interactive elements such as virtual interactive maps, a three-dimensional exploration of park geology and virtual tours of major attractions. This material will be intermixed with the message of preservation by providing information about the pollution problems within the park and providing suggestions on how visitors can help preserve the park. General topics that will be covered include main recreational attractions, environmental and geologic history and the park's future within the National Park Service. Environmental topics that will be covered include a brief overview of the environmental problems within the park, the National Parks Service plan to decrease pollution within the park, and environmentally smart decisions that visitors can make when visiting. The imagery will be a mix of vector-based illustrations and photographic images directly related to the material being presented. Video and three-dimensional elements will also be introduced as visual interactive elements to help educate the user. Sound and narration will also be added when necessary to create a visual and sound based learning environment.

One person will create the website in seven months. The educational website will be based on primary and secondary resources. Material will be gathered from conversations and information received directly from the National Parks Service, journals and other related sources. The limitations on the creation of this website will be based on the materials and research gathered. Limitations might also include a budget for

promotional materials, the amount of time it takes to create the website, and how to inform the general public of the existence of this online resource. An estimated budget of \$150 dollars will be used for promotional materials and for the purchase of items that may be needed for my project.

The outcomes of this project will be an increase in numbers of the general public who are educated about the environmental issues of Yosemite National Park. With this knowledge, people can make educated decisions when visiting the park that will have a significant impact of preserving the park. The general public can also choose to involve themselves with the issue and donate time and resources that will help decrease the pollution problems that plague the park.

The audiences for my website are young adults and adults of no particular ethnicity or gender. Their ages will range from 18 years to 70 years. The method of computer and internet availability might limit the accessibility to those of the middle and upper class, but the goal is to make the website accessible to all. My subjects will have some knowledge of computers and how to navigate around the World Wide Web, and most will have at least a high school education. The interests and hobbies of my audience might include using a computer, traveling, and being actively involved in a club or organization. My audience requires a website that is easy to navigate, quick to render and visually memorable. A computer must be present in the home or be easily accessible.

C. Literature Review

My research focus is how an interactive virtual and visual experience can help with the environmental and preservation goals of the National Park Service with a focus specifically on Yosemite National Park. I went to Wallace Library on RIT campus, various public libraries around the area including the Rochester and North Tonawanda Public Libraries and the World Wide Web to gather resources about his topic. I found most of the information that was related to my topic through books, journal articles and government websites.

Books

Brewer C. A. (2005). Designing better maps: a guide for GIS users. New York: ESRI Incorporated.

By mastering basic font skills and information architecture, this books focuses and instructs the reader on how to design better maps. Text effects such as leading, callouts and shadows are discussed and how they can help improve readability. This guide also includes a chapter for different export options to customize the map file format so it can be applied and edited in other applications. This book explains map

design techniques and provides references that I could possibly apply to the interactive interface of my project.

Garrett J. J. (2002). The elements of user experience: user-centered design for the web. Pearson Education.

By focusing on the relationship between site architecture and user experience, this book helps readers understand and apply important design factors that can help build a successful web site. Readers learn the framework behind user experience by a diagram that is presented in the book and walks the reader through the five sections of the diagram, which explains common methods and approaches for solving usability problems. This book provides references and information on web usability that I could apply when designing the layout and site structure. Helpful tips that are provided in the book can help in the user-testing phase of my project.

Huber, N. K. (1989). The Geologic Story of Yosemite National Park. El Portal, CA: Yosemite Association. This book presents up to date information about the geological History of Yosemite National Park. Major topics that are discussed include glacial formation and forest regeneration. The US Geologic Society has approved all data presented in this book. This book provides me with historical information that I could use to form content in the historical section in my project.

Swedo, S. (2005). Hiking Yosemite National Park: a guide to Yosemite National Park's greatest hiking adventures Guilford, CT: Globe Pequot Press

Filled with hiking maps and trail descriptions, this books goal is to educate readers about the public hiking trails that reside in Yosemite National Park. A detailed trail map, an estimated hiking timeline in hours, and a hiking skill level rating accompany each trail description. I feel that this book will help provide hiking information and reference content when designing the recreation section of my project.

Ware, C. (2004). Information visualization: perception for design. San Francisco, CA: Elsevier Science & Technology Books.

By providing a scientific approach to human perception, this books answers basic perceptual questions like how can text be read more easily and how color can affect the design message. The book provides compressive research by psychologists and neurologists about key principles at work that help in vision and perception. A knowledgeable designer can then apply theses techniques to provide a clear, understandable message or goal. Chapters cover a wide range of topics about visual perception including

color, organization, space perception, motion and texture. This book will help with forming my site structure and interpretive perceptual design of my project.

Iuppa, N. (2001). Interactive design for new media and the web. Boston, MA: Focal Press.

This book examines the capabilities of digital media for increasing user experience and interactivity by applying basic design principles and interface guidelines to communicate clearly to the user. This book describes the tools needed to successfully create site maps and design documents that can help the design process run smoothly. It also provides a wide range of examples of well-designed interfaces to inspire and provide visual examples of well-designed interfaces. This book offers me visual examples and techniques that I can apply to the graphic user interface and site structure of my project.

Mumaw, S. (2003). Redesigning websites: retooling for the changing needs of business. Gloucester, MA: Rockport Publishing,

By redesigning and restructuring existing websites, this book educates readers on the principles that are applied to create a well-designed websites that communicate to the viewer. It provides in depth case studies with visual examples. The author examines the purpose of the original sites; it's effectiveness and how the designers who recreated the sites solved the design problem. Color visuals provide a before and after that the reader can compare and contrast and see what design principles were applied in the redesign. This book is a good visual reference for when I design the site architecture and layout.

McCarthy, J., & Wright, P. (2004). Technology as experience. Cambridge, MA: MIT Press.

The authors argue that user experience must include the emotional, intellectual, and sensual aspects of our interactions with technology. They research and analyze the human-computer interaction and offer a new approach to understanding the experience. The authors draw comparisons from philosophers to examine a clearer analysis of technology as experience. The book concludes by stating that technology is deeply embedded in daily life. This book provides extensive research in the human-computer relationship that I can utilize when forming my site structure and communication goals of my project.

Klett, M., Solnit, R., & Wolfe, B. (2005). Yosemite in time: ice ages, tree clocks, ghost rivers. San Antonio, TX: Trinity University Press.

By illustrating Yosemite through a series of photographs, the author/photographer provides a photographic narrative that allows the readers to experience the wilderness and geological features of the park. A series

of essays accompany the images and provide an in-depth look of the changing environmental and social conditions that currently face the park. They question how the first explorers defined the park and how the park has changed dramatically since the influx of tourists. This book provides detailed visuals and related information that I could use as reference material for the formation of my content.

Browning, P. (2005). Yosemite place names: the historic background of geologic names in Yosemite National Park. San Francisco, CA: Great West Books.

This book provides the background of the names of the parks, rivers and geological features that reside in Yosemite national Park. By providing dates and a brief historic background of how and why the feature was named, the author provides a historic background for each feature that are described in the book. This book will help provide content for the historical section of my project.

Articles and Journals

Mitchell, J.G. (2006, October). Our parks in peril. National Geographic.

This series of articles was written to inform the public on the current negative status of the National Parks Service. Due to the direct results from budgetary cuts and negative political policies the Parks System is quickly losing ground on its goals of preservation. This resource will help provide information when forming content on the environmental status of Yosemite National Park.

National Parks Advisory Board. (2001). Rethinking the National Parks for the 21st century: A report of the National Parks Advisory Board. Washington, DC: U.S. Government Printing Office.

This is a report compiled by the National Parks Advisory Board that focuses on the purposes and prospects of the National Park System for the upcoming twenty-five years. The goal of the report is to study factors and actions that will help the National Parks system flourish well into the 21st century. The report suggests alterations in park management, public education, political involvement and conservation. This article will help provide me with the political background needed to form the hypothesis and overall goal of my project.

Williams, Juliana (2005). Interactive Hiking map of Yosemite national park. Zurich, Switzerland: Institute of Cartography Hoenggerberg.

This is a paper presented at the SVG Open Conference that provides an interactive hiking map of Yosemite National Park. A specific hike can be chosen on the map revealing the chosen trail profile and hiking specific hiking tips to the chosen trail. The paper can be found at http://www.svgopen.org/2005/papers/abstract_williams_yosemite_national_park/index.html. This resource helps provide references for what type of interactivity have been accomplished relating to my thesis.

Websites

Exploring the Chesapeake: Then and Now

<http://nationalgeographic.com/chesapeake/>

This website provides users the choice to explore the Chesapeake Bay history or the bay in current time. Interactive Maps help guide the user to informational topics such as exploration and the ecology accompanied with an audio narrative. An interactive time lined is used as a navigational tool so users can jump through from date to date. This site will be a useful reference when creating my navigational components and interactive maps.

Google Maps

<http://www.google.com/maps?hl=en&tab=wl&q=>

Google maps allow users to map from place to place to provide directional information. Users can provide a city or zip code and an aerial map is provided of the area. Using satellite data, users can zoom into their destination to provide a more detailed visual for the user. The zoom function is so detailed that users can identify the tops of building or even their own backyard. This site will be a useful resource when creating the interactive maps that will be used though out the project.

ForgeFX

<http://www.forgefx.com/casestudies/prenticehall/>

Forge FX specialized in three-dimensional simulation. This website is a showcase of simulations that were created by different clients. Clients include students and scientists who have created the simulations for exploration or research purposes. A QuickTime movie of the animation of the simulation is provided for the user to view. This site provides technical knowledge for what can be accomplished in a three dimensional program for my project.

National Parks Website

<http://www.nps.org>

This website is the overall hub for the National Parks system. The site provides information about each park including location, recreation, seasonal closures, hiking and lodging and camping reservations. Each park has it's own site linked off the parent site that provides history and information specific to that park. Interactive and educational tools for teachers and students are also included in each child site. This site will help provide references when creating content for my project.

QTVR's of Yosemite National Park

<http://www.virtualparks.org/parks/yosemite-text-list.html>

By providing QTVR's of National Parks, this sites goal is to educate the viewer on the environment and provide visual awareness of the National Parks. The site is privately owned and the QVTR's are a series of photographs that are pieced together. The user can click on a National Park to get a "pop-up" screen of a QTVR. The movie itself runs slow and the user has to wait for the next series of photographs to load half way through the simulation. This site provides reference material for the creation of my projects content and imagery.

The Sierra Club

<http://sierraclub.org>

The Sierra club is a National Organization whose main goal is to provide Environmental and Social awareness. They actively participate in preservation issues directly relate to the National Parks System and have taken an active role specifically in the preservation of Yosemite Valley. This website provides documentation and information about the ongoing battle to save Yosemite Valley from environmental deterioration. This site will help provide information a factual material when creating my projects content.

Theban Mapping Project

<http://www.thebanmappingproject.com/>

An intense interactive site, the Theban mapping project reflects archeologist's daily recovery of the excavation of the Theban Necropolis. The site provides documents, journals and resources that are updated daily. The main attraction is an interactive navigational map of the two sites of the Valley of the King and the Theban Necropolis. Users can navigate around the map to choose where they want to visit specifically in the site. A three dimensional simulation provides the users an opportunity to "walk through" the sites and see what you would see if you were actually walking through the site. This site provides a reference to what has already been accomplished with using interactivity, photography and maps.

Yosemite Interactive Classroom

<http://www.nps.gov/archive/yose/education/>

This website, provided by National Parks, is an interactive educational tool for teachers and students to increase their awareness of Yosemite National Park. The site provides activities and interactive educational games where users can have fun and learn about the park at the same time. Topics that are covered are the environment, flora and fauna, wildlife and the history of the park. This site provides information that can be used as reference material when creating my project.

D. Marketing Plan

The marketing plan for this thesis includes submitting the final project to conferences and literary competitions. These will include but are not limited to the interactive annual of Communication Arts and Print Magazine, interactive competitions for Adobe, South by Southwest Conference, Flash Forward Conference and the Flash in the Can Conference, and monthly competitions such as flashkit.com. Another option is to recruit the National Parks System in the aid in the distribution of my thesis. This could include posting a link on their current parent site and distributing promotional material with a printed reference to the site.

E. Proposal Revisions

Due to the amount of time and the research that I was able to gather, there are a few slight changes in the original methodology section of the proposal. I had written, "Video and three-dimensional elements will be introduced as visual interactive elements to help educate the user. Sound and narration will also be added when necessary to create a visual and sound based learning environment." Unfortunately, I was not able to implement three dimensional elements and narration. Time and resources were both valid reasons on why I had to omit these from the final project. I did have a chance to add sound, however it was not to the full extent in which I had originally planned. During the introduction, themed music plays to help reinforce the mood and subject of the project. I had planned on creating several difference musical clips that would play according to the different topic in the navigation. Once again, more time was needed than planned.

Samples of Sources from the NPS website



This project made possible through a gift from the Jeopardy Foundation. Printed on recycled paper. © 2006.

This brochure was written by National Park Service Ranger Jon Kinney who died in May 1986. Jon felt a sense of wonder for these great trees and shared his feeling with thousands of park visitors on his walks through the Mariposa Grove. He continues to speak, in the silence of this grove, to all of us about life on this planet and the sacredness of our wilderness.

All Photos Courtesy of Yosemite Research Library



THE YOSEMITE FUND
Preserving the Yosemite's Future

Mariposa Grove of Giant Sequoias

Yosemite National Park

50¢



Welcome to the Mariposa Grove of Giant Sequoias. If you are surrounded with the trees in the parking area, you will be awed by the larger trees ahead.



WELCOME TO THE MARIPOSA GROVE

These trees, *Sequoiadendron giganteum*, are not the oldest living things. Although the oldest giant sequoias may exceed 3,000 years in age, some living specimens of the ancient bristlecone pine, *Pinus aristata*, are more than 4,600 years old!

Giant sequoias are not the tallest living things, either. The related coastal redwoods, *Sequoia sempervirens*, grow higher, up to 388 feet (112 meters). These "Sera redwoods" top out around 310 feet (94 meters); the tallest in the Mariposa Grove is about 290 feet (88 meters).

Giant sequoias don't even have the greatest basal diameters. The Montezuma cypress, *Taxodium mucronatum*, of Mexico may exceed 50 feet (15 meters). The largest giant sequoia is just over 40 feet (12 meters) in basal diameter.

So how did these trees capture the attention of the world? Simply stated, in total volume the giant sequoias are the largest living things known to humans.

On your right as you start into the grove on the main trail is the **Fallen Monarch** (pictured on cover). Biologists suspect that this tree has been down for centuries. Tannic acid in the wood suppresses the initial growth of fungi and bacteria, essentially arresting decay of a fallen sequoia. Only when rain and melting snow have leached the tannin from the wood can decay begin. For your safety and to help preserve what remains of the Fallen Monarch, please do not climb on it.

Notice the roots of this tree. Sequoias do not have deep tap roots; instead the roots spread out near the surface to capture water. While the roots are usually no deeper than six feet (2 meters), they can fan out more than 150 feet (45 meters), providing a stable base to balance the massive trunk. When visitors stay on the road and trails, it minimizes soil compaction that damages these surface roots.

Lining the road above the Fallen Monarch are numerous young sequoias, distinguished by their foliage of round, overlapping scales, distinctive conical profiles, and soft, spongy bark. Strangely, there are few young sequoias back in the forest. Can you guess why?

To germinate, sequoia seeds have three requirements: 1) some direct sunlight, 2) adequate moisture, and 3) bare mineral soil. Ironically, road construction creates a perfect seedbed by opening up the forest floor to sunlight, increasing moisture along the roadways, and providing bare mineral soil on the road's banks.

But why are young sequoias so sparse away from the road? Shortly after these trees were discovered, in a well-intended effort to protect them, people began suppressing natural fires. More shade-tolerant trees quickly spread over the forest floor, reducing sunlight, competing for moisture, and blanketing the mineral soil with their needles and debris. It became impossible for sequoia seedlings to get started.

Only lightning-caused fires reduce the competition from other evergreens, burn away the leaf litter, and leave a thin layer of nutrient-rich ash over the mineral soil. Also, the heat from a fire dries some of the mature trees' green sequoia cones, causing a shower of fresh seeds to fall onto a perfectly-prepared seedbed. When winter comes, snow blankets the Mariposa Grove. As the snowpack melts the following spring, sunlight, moisture, fresh seeds, ash, and mineral soil combine to create a sequoia nursery.

This dependency on natural fires for sequoia reproduction was not understood until the early 1960s. By then, 100 years of unburned forest litter and young evergreens were present, producing a massive fuel load. Had lightning ignited a fire under these unnatural conditions, an intense crown fire that might have killed the largest trees could have occurred. To reduce this abnormal fuel supply and promote giant sequoia reproduction, the National Park Service began a series of "prescribed burns," that were deliberately set and closely monitored by rangers, during spring and fall. When the forest returns to a more natural state, these management fires will probably be discontinued. Then nature can resume its cycle of lightning-caused fires every seven to twenty years.

At the **Bachelor and Three Graces**, you can often find egg-shaped sequoia cones. The crown of a mature giant sequoia may bear thousands of green cones at any one time. Each cone contains about 200 tiny flat seeds, roughly 1/4 inch (1 cm) in length and resembling rolled out flakes. These female cones grow on the upper branches.

To reproduce, giant sequoias depend on the wind. Late winter storms bring strong winds that carry the pollen from the lower branches of one tree to the upper branches of others, allowing the seeds to be pollinated and continuing the genetic mixing necessary for healthy reproduction.

Please remember to leave all cones where you find them for other visitors and squirrels to enjoy.



THE GRIZZLY GIANT

is one of the largest trees in the Mariposa Grove and is estimated to be 1,800 years old. As you near its base, look up. That huge limb on the south side is almost seven feet (2 m) in diameter, which is larger than the diameter of the trunk of any non-sequoia in the grove!

Some 50 yards (45 m) beyond the Grizzly Giant is the **California Tunnel Tree**, cut in 1895 to allow horse-drawn stages to pass through. Most visitors don't know that two trees in this grove were tunnelled, and this is the only one still standing. Walk down and stroll through a tree!

Only an occasional large sequoia occurs along this dry slope between the lower and upper portions of the Mariposa Grove. About 1/2 mile (0.8 km) up from the Grizzly Giant, in a level area with more ground moisture, is the **Faithful Couple**. Here two large trees have fused together at their bases, but remain clearly separated above. On the opposite side of the road stand two smaller trees that may form the next "faithful couple" 500 years from now.



1 1/2 MILES (2 km) FURTHER

is the **Clothespin Tree**. Numerous fires have excavated a natural tunnel wider than a car. Size is deceptive here, so walk up and stand in the opening.

The Spanish named the region to the west Mariposa for the many butterflies they observed in the foothills. One of the most perfectly shaped sequoias, the Mariposa Tree, carries the name of the county. Notice the almost completely healed fire scar near the base of this magnificent tree.

Another 1/2 mile (0.4 km) will take you to the **Mariposa Grove Museum**. This fine cabin occupies the site where Galen Clark built a small cabin in 1861. Inside are exhibits on the ecology and history of giant sequoias, as well as books and postcards for sale.

You can help protect the Mariposa Grove and preserve the giant sequoias by staying on roads and official trails.



ANOTHER 1/2 MILE (0.8 km)

straight ahead from the museum junction is the top of the upper portion of the Mariposa Grove. Directly in front stands the **Galen Clark Tree**, named for the person who did so much to protect these sequoias. In 1857, Clark first entered this grove, probably following the draw ahead of you. He was so impressed that he spent the rest of his life guiding visitors among these wonders and urging their protection.

In 1864 Abraham Lincoln paused during the Civil War to set aside the Mariposa Grove and Yosemite Valley as a protected state reserve "for public use, resort, and recreation." Mr. Clark lived to see Yosemite National Park established in 1890 and this grove incorporated into the park in 1906. Along with John Muir, Galen Clark was instrumental in Yosemite's preservation, and it is fitting that this beautiful tree bears his name as a living memorial.

To your left, an easy side road leads 1/2 mile (0.4 km) to **Wawona Point**, offering an ideal lunch stop with a stunning view to the west and north.

Please help preserve this magnificent forest and leave all cones where you find them.



TURNING RIGHT

from the Galen Clark Tree leads you to perhaps the most famous tree in the world, the fallen **Wawona Tunnel Tree**. Who knows how many millions of visitors drove through this tree between 1881, when the tunnel was cut, and 1969, when it finally collapsed under a record snowload. Weakened by the massive hole in its base, it may have died 1,000 years prematurely. But the stories and pictures of this gentle giant traveled around the world and undoubtedly contributed to the preservation of its brethren.

Returning along the upper grove loop road, you'll find the **Telescope Tree**. Close your eyes and walk inside. With your eyes still closed, lean your head back and slowly open your eyes. Incredible! This amazing tree is still alive and producing viable seeds. The sequoia's resistance to fire, disease, insects, and decay that allows them to live through the centuries. The Telescope Tree is a notable example of its endurance.

A wise man once said, "A culture is measured by what it preserves." Although Yellowstone became our first designated national park in 1872, the idea for preserving our natural treasures budded here in this grove at least eight years earlier. America's national park idea may be our most noteworthy contribution to the spiritual wealth of mankind.

Tuck this pamphlet away and walk slowly back down, letting this special place touch you.


[HOME](#)
[PRODUCTS & SERVICES](#)
[NPS MAPS](#)
[NPS PHOTOS](#)
[CONTRACTORS](#)
[CONTACT US](#)

NPS Photos > Search the Collection > Photo Search Results

NPS Historic Photograph Collection

Photo Search Results

Photos **1** - **10** of **87** total photos.

Click on an **image thumbnail** or the **catalog number** to view a larger version of each photo.



Catalog Number: **HPC-000032**; **Photographer:** Lloyd, James V.; **Year:** 1920; **Description:** This visiting radio fan had just placed his portable set in operation when, much to his surprise, one of the wild bears of Yosemite Valley dropped in to listen in . . . from James V. Lloyd, Information Ranger, Yosemite National Park, Calif. **Parksite:** Yosemite National Park.



Catalog Number: **HPC-000048**; **Photographer:** Lloyd, James V. (?); **Year:** 1926; **Description:** L. to R. Rd engineer Austin of Sequoia, Supt. Lewis of Yosemite, Mr. Mather (Director, NPS), G.S. Underwood (Architect) and Don Tresidder (Y.P.&C.C.) at proposed Ahwahnee Hotel Site, May 1926. **Parksite:** Yosemite National Park.

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Cataloging Data

Catalog Number: HPC-000032

Other NPS Image Numbers:
616

Theme: Flora/Fauna, Visitors

Image Description

Approximate Year: 1920

Park: Yosemite National Park

Photographer: Lloyd, James V.

Description: This visiting radio fan had just placed his portable set in operation when, much to his surprise, one of the wild bears of Yosemite Valley dropped in to listen in . . . from James V. Lloyd, Information Ranger, Yosemite National Park, Calif.

Additional Comments: 6 1/4" x 9 3/4" b/w print, 4 1/4" x 6 1/2" b/w print

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What are Outstandingly Remarkable Values?

Outstandingly Remarkable Values of a Wild and Scenic River

"It is hereby declared to be the policy of the United States that certain selected rivers of the Nation, which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." - Wild and Scenic Rivers Act of 1968

Outstandingly remarkable values (or ORVs) are defined by the Wild and Scenic Rivers Act as the unique characteristics that make a river worthy of special protection. Only one ORV is required for a river to be designated into the National Wild and Scenic Rivers System. Outstandingly remarkable values of the Tuolumne River were first identified in 1979 and are being updated during this planning process.



Photo courtesy of John Hines



Photo courtesy of John Hines



Photo courtesy of John Hines

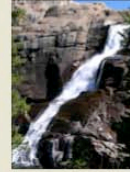
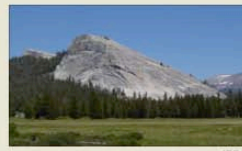


Photo courtesy of John Hines

Outstandingly remarkable values of a river can include natural and cultural resources, such as vegetation, wildlife, geology, hydrology, scenery, recreation, American Indian traditional values, archeology, and historic features, provided that these values are both:

- River-related, meaning in or adjacent to the river or owing existence to the river.
- Rare, unique, or exemplary in a regional or national context.



WPS Photo

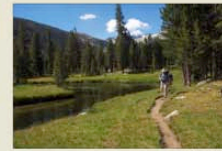
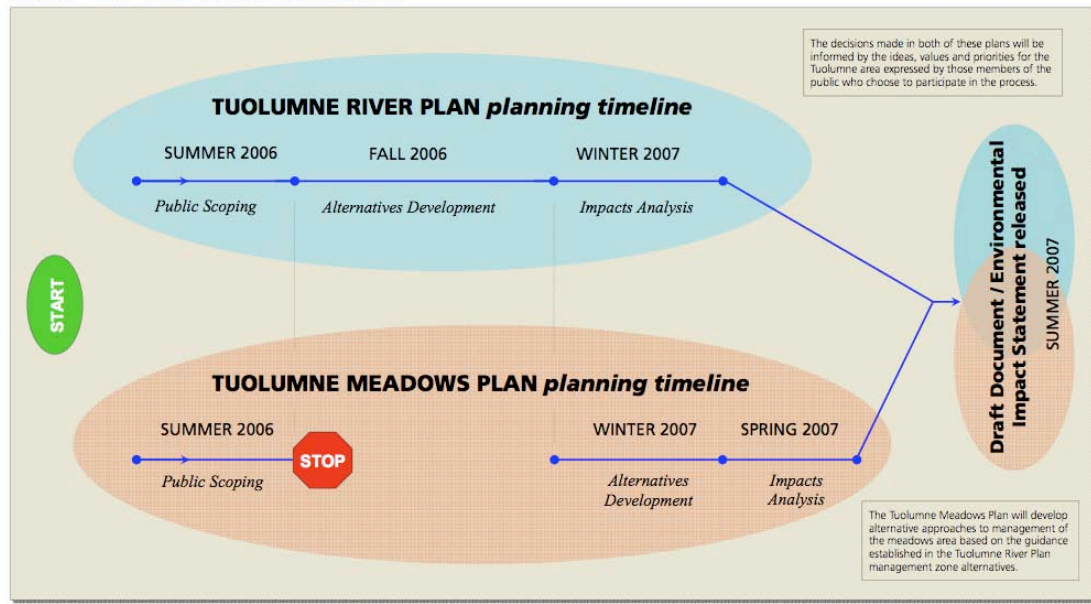


Photo courtesy of John Hines

Outstandingly remarkable values of the Tuolumne River were first defined in 1979 as part of an eligibility study for inclusion in the National Wild and Scenic Rivers System. A preliminary revision of these values, captured in the Draft ORV Report, is available upon request.



How Do the Plans Relate?



Yosemite National Park

National Park Service
U.S. Department of the Interior



Planning in the Tuolumne Area

Learning about planning in a place as large and complex as Yosemite National Park requires an understanding of the different types of planning documents, their relationship to each other, and their relationship to the National Environmental Policy Act (NEPA). The following helps to explain how current planning efforts in the Tuolumne area fit into Yosemite's larger planning picture.

What kinds of plans are there, and how do they differ?

Planning in Yosemite National Park takes two different forms: general management planning and implementation planning.

General management plans are long-range plans for a specific national park area. As the broadest level of decision making for a park, general management plans focus on why the park was created and what resource conditions and visitor experiences should exist, but do not go into detail about how to accomplish those conditions and experiences. Yosemite's 1980 *General Management Plan* articulates the park's mission and overall direction for planning throughout the park. It is a guidance document that aims to achieve five broad goals: reclaim priceless beauty, allow natural processes to prevail, promote visitor understanding and enjoyment, reduce traffic congestion, and reduce crowding.

Implementation plans, which tier off of the general management plan, focus on how to implement an activity or project to achieve a long-term goal. Implementation plans may direct specific projects as well as ongoing management activities or programs, and provide a high level of detail and analysis. The *Yosemite Valley Plan* is an example of an implementation plan.

Over the course of the next two years, both levels of planning will be taking place in the Tuolumne area as planning gets underway for the *Tuolumne Wild and Scenic River Comprehensive Management Plan* (Tuolumne River Plan), *Tuolumne Meadows Concept Plan and Environmental Impact Statement* (EIS).

What is the Tuolumne River Plan?

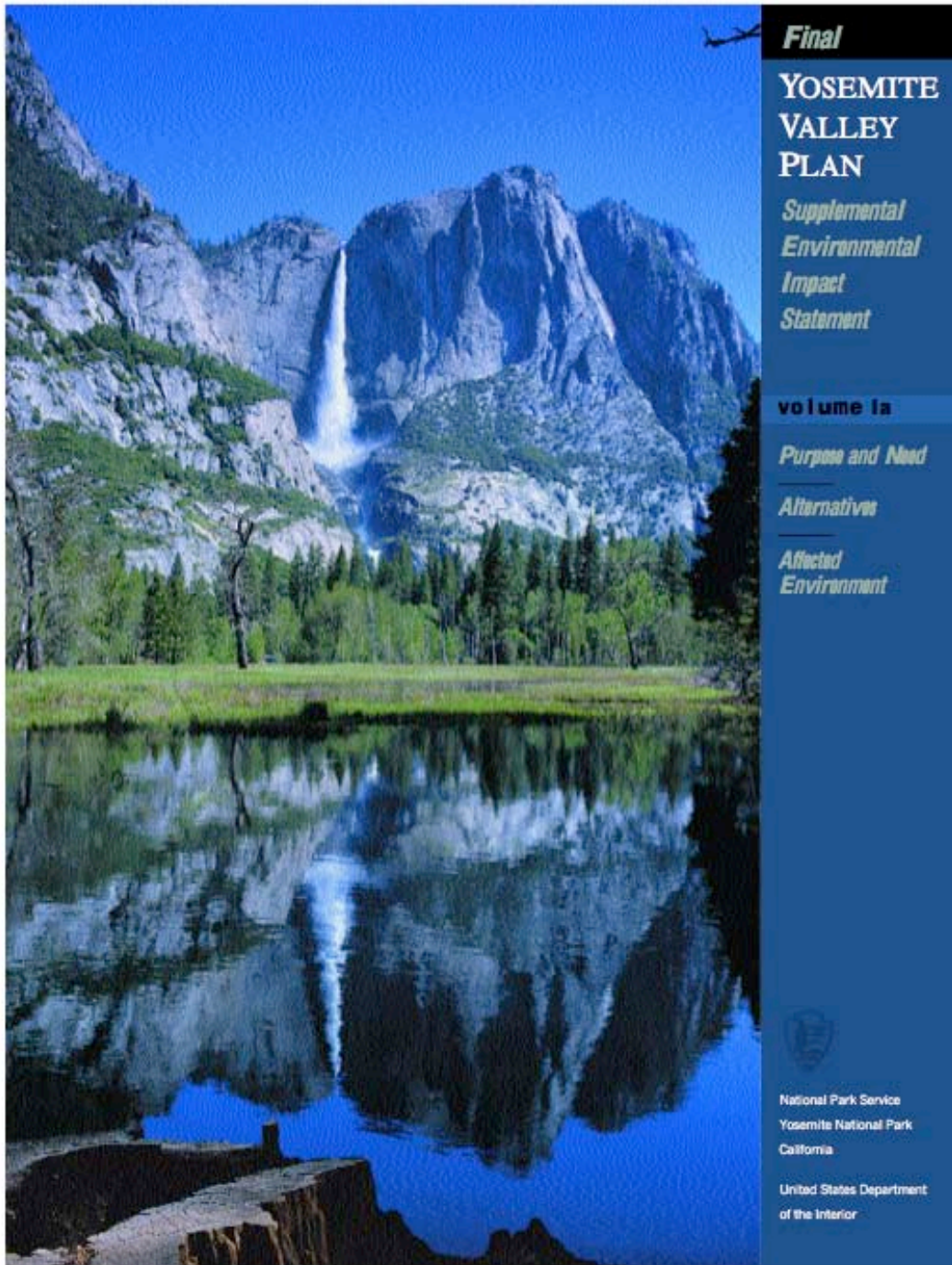
In 1984, Congress designated approximately 83 miles of the Tuolumne River as a Wild and Scenic River. This included 54 miles of the river under the jurisdiction of the National Park Service in Yosemite National Park. In accordance with the Wild and Scenic Rivers Act, the National Park Service must prepare a comprehensive management plan to guide future decisions in the river corridor. The *Tuolumne Wild and Scenic River Comprehensive Management Plan* (Tuolumne River Plan) EIS will evaluate a range of alternatives that present the management direction for protecting the free-flowing condition and unique values of the Tuolumne River in Yosemite National Park.

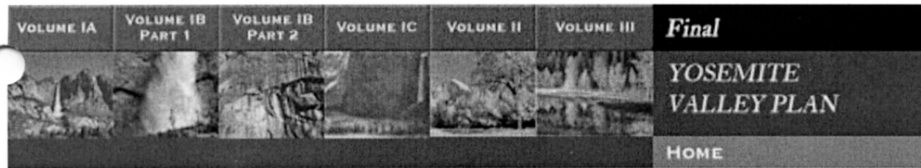
How does the Tuolumne River Plan fit in?

In the National Park Service, a river management plan is on the same level as a general management plan. Thus, the Tuolumne River Plan will work side-by-side as a companion document to the park's *General Management Plan*. Drawing its management authority from the 1968 Wild and Scenic Rivers Act, the Tuolumne River Plan will actually amend portions of the *General Management Plan* as they relate to land use planning and user capacity in the Tuolumne River corridor.

Like the *General Management Plan*, the Tuolumne River Plan will guide decisions and on-the-ground actions in future implementation plans, such as the upcoming *Tuolumne Meadows Concept Plan*.

(continued on back)





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Yosemite Valley Plan: The Story and the Process

With millions of visitors coming to Yosemite Valley each year, development and traffic congestion pressures continue to weigh heavily on this unique national treasure. The National Park Service's mission, mandated by the Congress, is to "... *conserve the scenery and the natural and historic objects and wild life therein and to provide for the enjoyment of same in such manner...as will as leave them unimpaired for the enjoyment of future generations.*" Preserving the park's natural and cultural resources in order to provide opportunities for visitor uses and enjoyment is key to planning for the future of Yosemite Valley.

Background and Goals

The primary plan designed to guide the National Park Service in protecting and managing Yosemite National Park is the 1980 [General Management Plan](#). This long-range plan for the entire park outlined five broad goals:

- Reclaim priceless natural beauty
- Reduce traffic congestion
- Allow natural processes to prevail
- Reduce crowding
- Promote visitor understanding and enjoyment

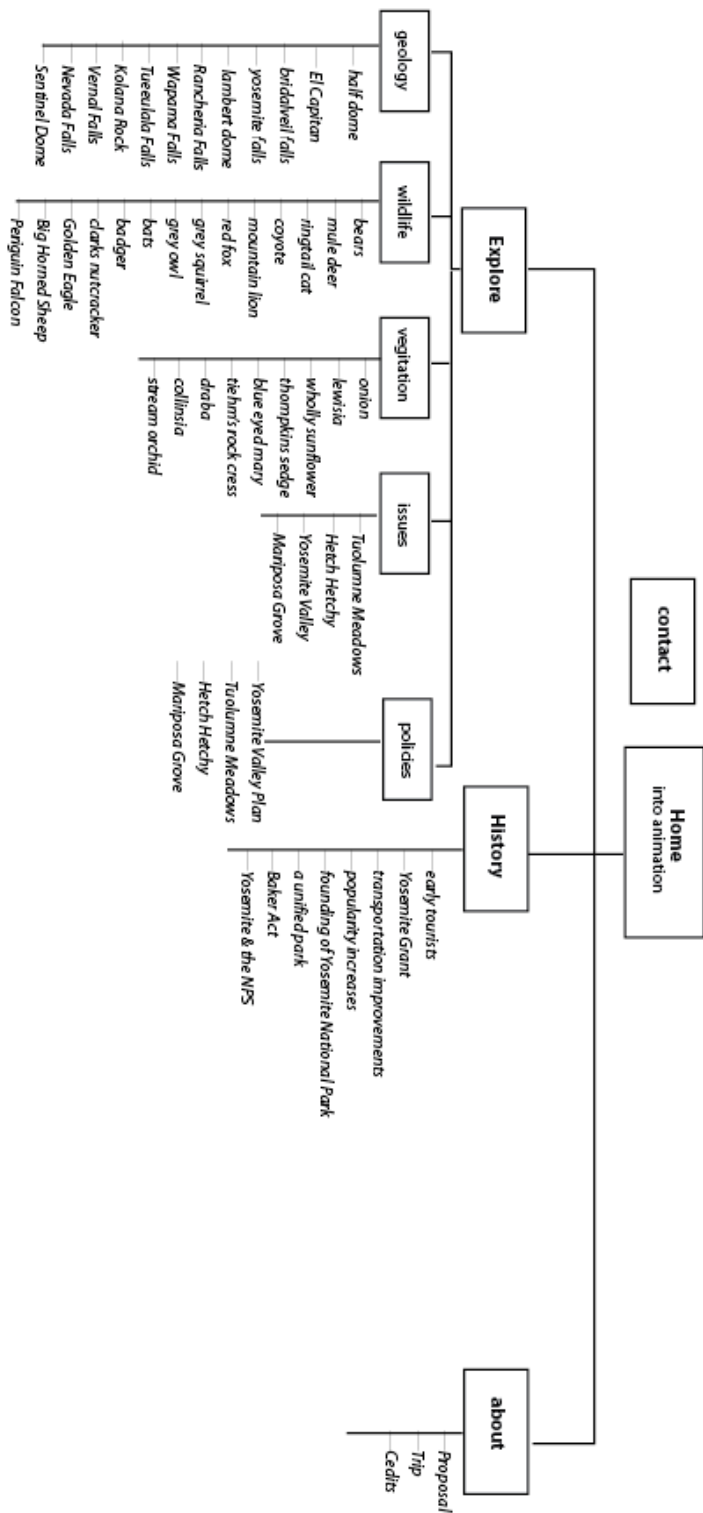
The *Yosemite Valley Plan* aims to help carry out these goals and, in the process, to restore Yosemite Valley's natural processes.

What is the *Final Yosemite Valley Plan/SEIS*?

The [Final Yosemite Valley Plan/Supplemental Environmental Impact Statement \(SEIS\)](#) is a consolidation of several planning efforts over the last two decades. It is a comprehensive document that presents and analyzes four action alternatives and a No Action alternative for managing natural and cultural resources, facilities, and visitor experiences in Yosemite Valley. The *Final Yosemite Valley Plan/SEIS* was prepared based on the guidelines of the National Environmental Policy Act and was preceded by a draft that was released for public comment and review in March 2000.

After the National Park Service's Pacific West Regional Director signs a Record of

Information Architecture Sketches and Layouts



Content Outline

Explore

Wildlife

Valley

Black Bears (Lower Montane)

(www.yosemite.national-park.com/info.htm)

Eating Habits- plants including acorns compromise 75% of diet.

Biology and dynamics

Opportunists- adapt to forging habitats, highly intelligent

Policy and Problems- history of dumpster feeding .

http://www.yosemite.ca.us/library/mammals_of_yosemite/flesh_eaters.html

Threat to Survival- availability of human food. Fear of people fades and become aggressive.- Killed by Park rangers

Storing Food- bear lockers, policies. Bear traps put out by park rangers

Mule Deer (Lower Montane)

Biology and eating habits

Most common seen animal besides the squirrel- are accustomed to people- more attacks occur to people from deer than bears. People try and approach.

Threat- people feeding the deer and become dependent on human diet.

Survival- don't feed deer, stay clear, don't approach.

Ringtail Cat

Biology and eating habits- nocturnal and rarely seen. Eats fruits, berries, insects. Good climber.

Problems- Often enter homes and cabins looking for food.

Survival- pack food away so they don't enter camping enclosures. Don't feed, become dependent on human food and doesn't know how to gather on own.

Coyote (foothill)

Biology, dynamics and eating habits- carnivores often eat mice and deer.

History- Been the victim of trapping and hunting- still flourish in Yosemite

Problem- generally stay clear of humans. Have an undeserved bad reputation.

Sierra Nevada Red Fox (mountain)

Biology, dynamics and eating habits

Special status- population is low- not endangered but it's being monitored. Extremely rare to see in the wild. Not a lot of research has been done due to it's elusiveness in the wild.

Grey Squirrel (foothill)

Biology, dynamics and eating habits

Commonality- seen throughout the park. Large population than other surrounding areas. Could be due to food at camps.

9/06

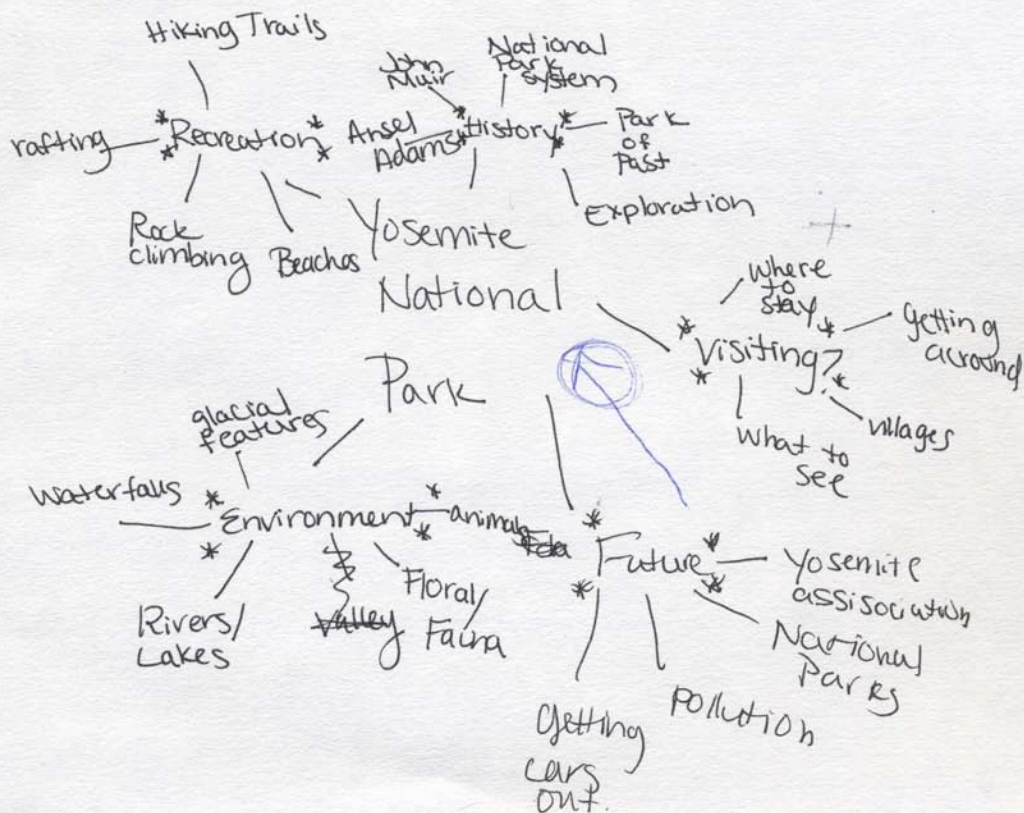
Watercolor type feel.

Main Sections

Primary Nave

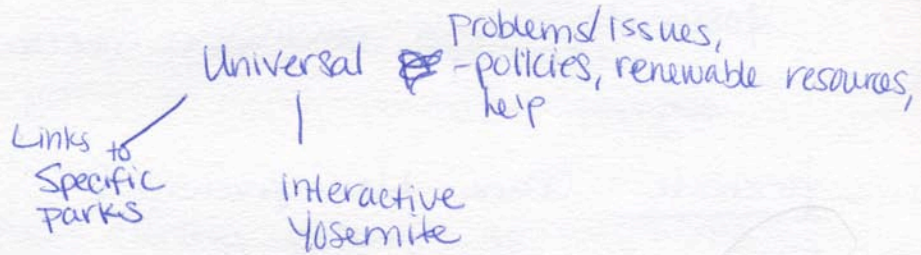
Explore, Learn, Help

Explore: Park History
~~Recreation~~
Park ? ┌ recreation
└ glacial features

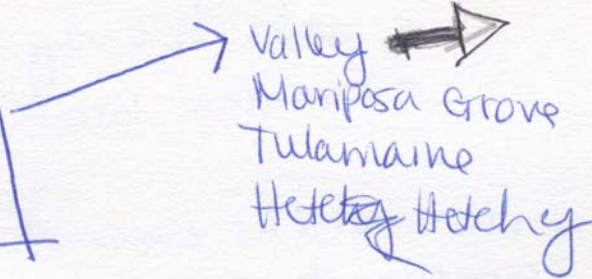
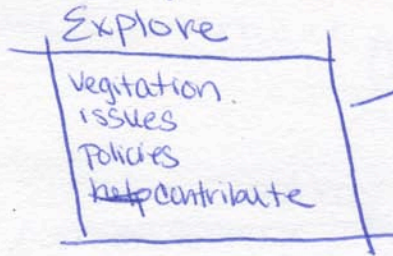


The Umbrella Idea

- Unite everything environmental under 1 site where you can explore different issues



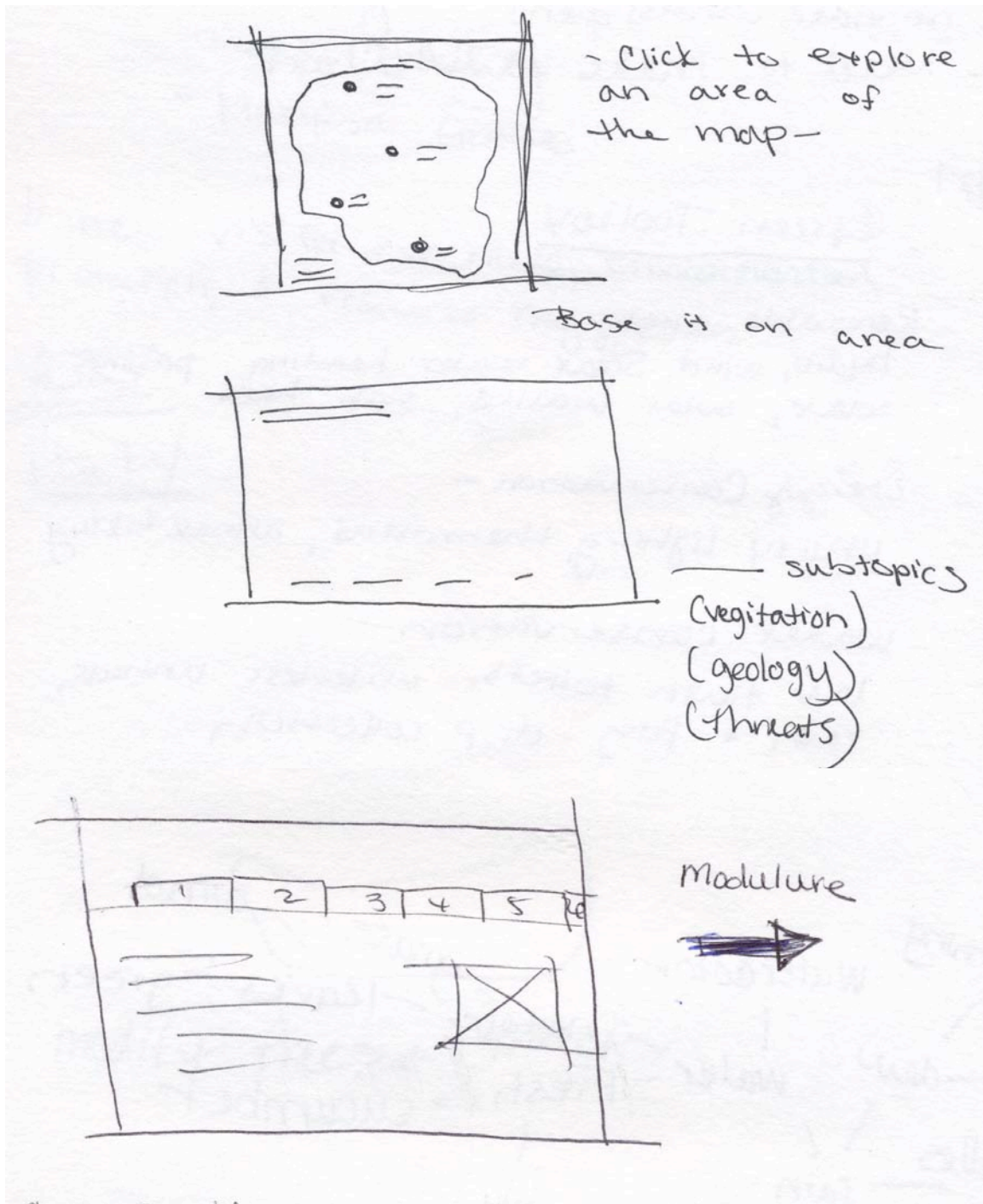
Interactive Yosemite



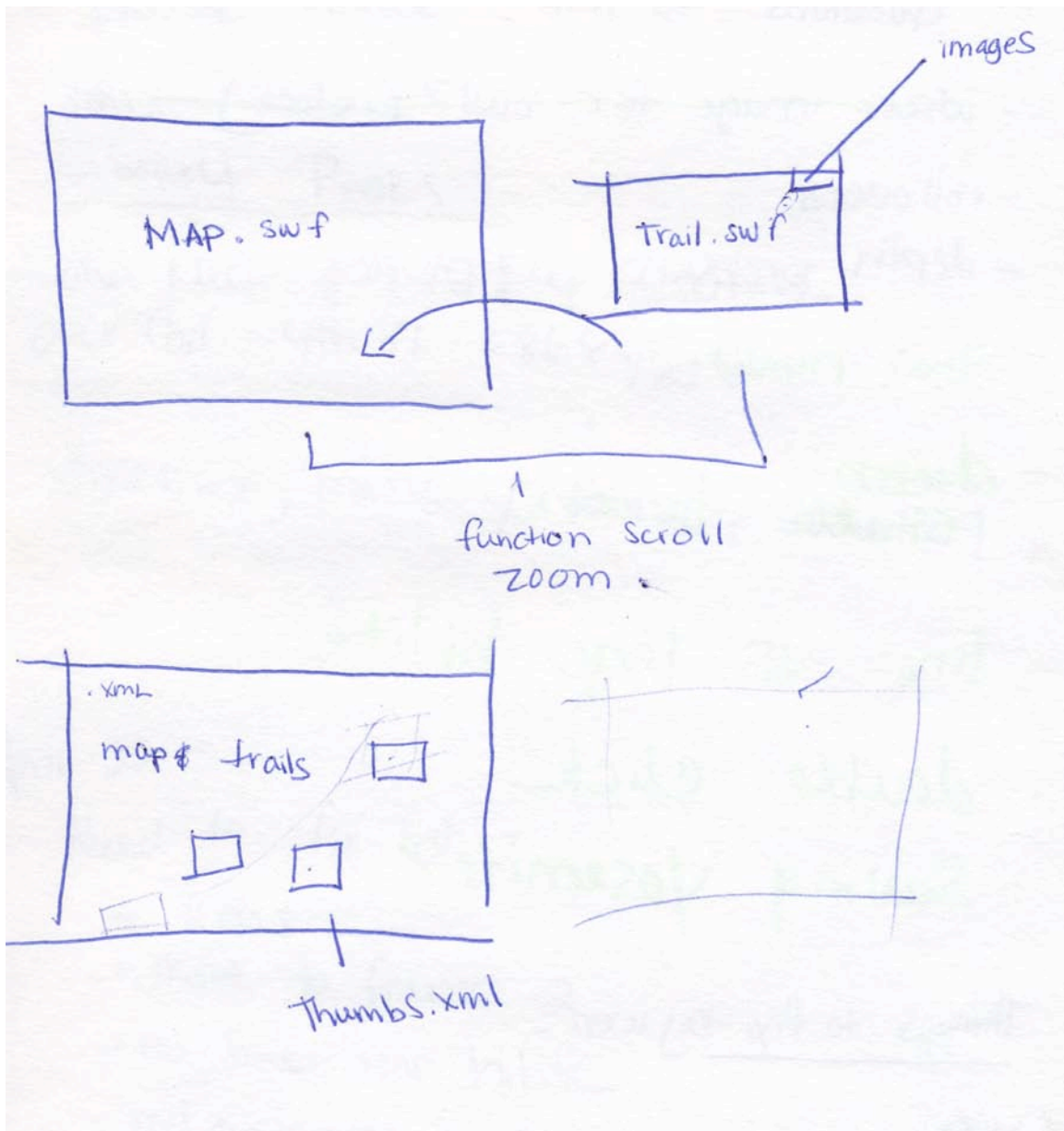
- Explore conservation
- History
- Contact

Design Sketches

Early Thumbnails



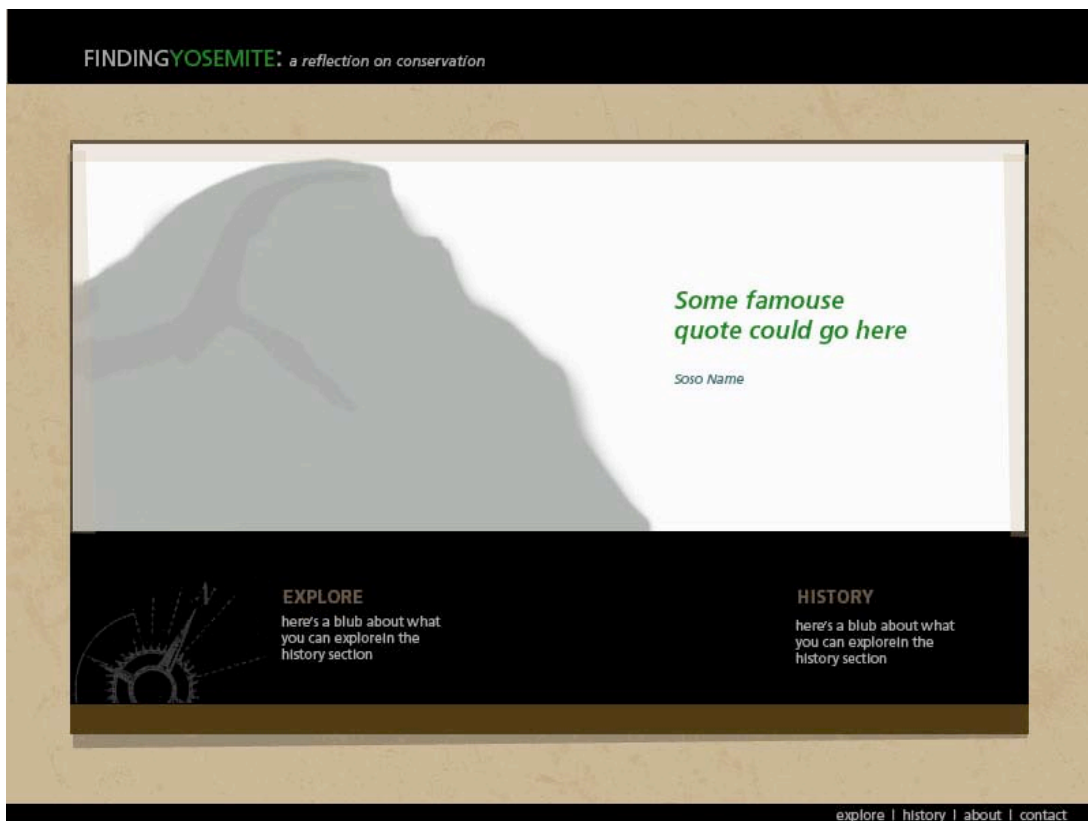
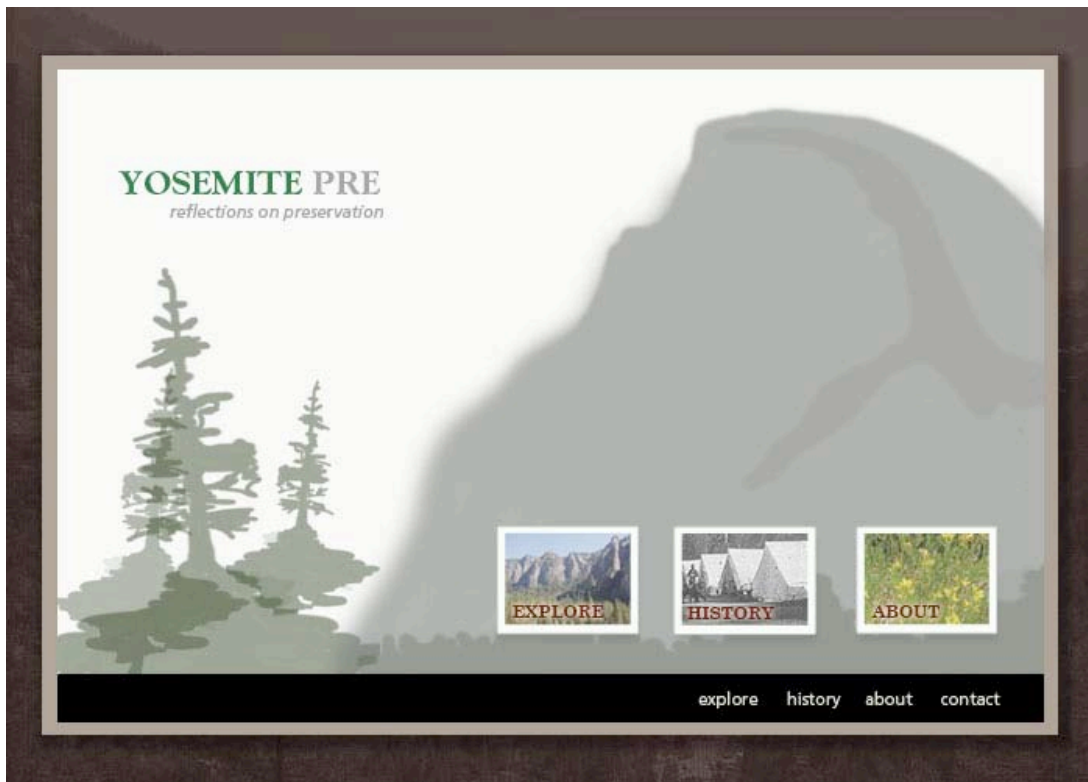
File structure brainstorm session



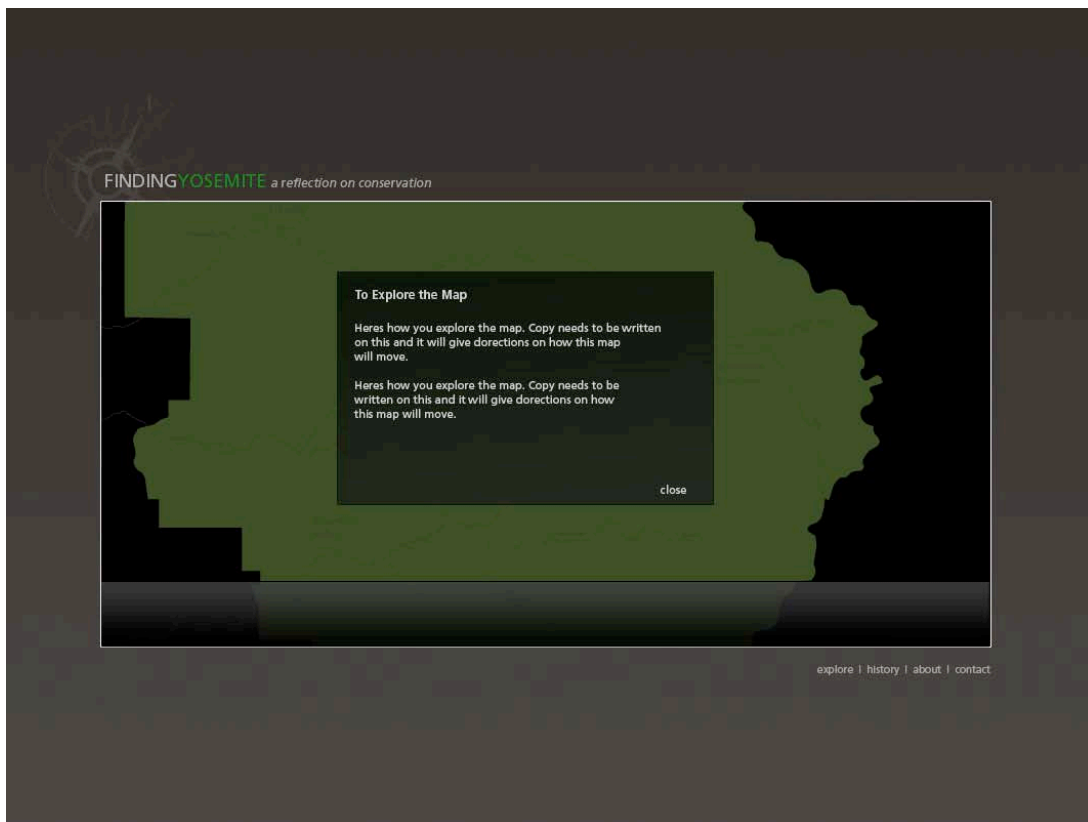
Icon Sketches



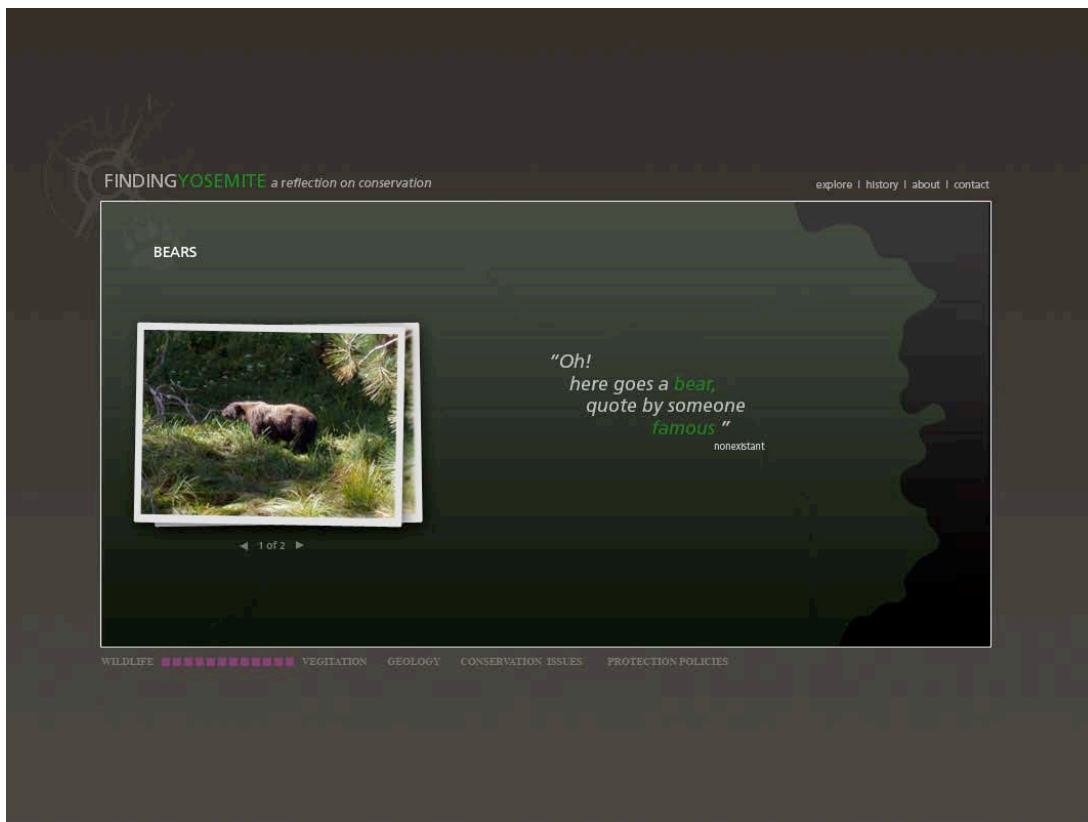
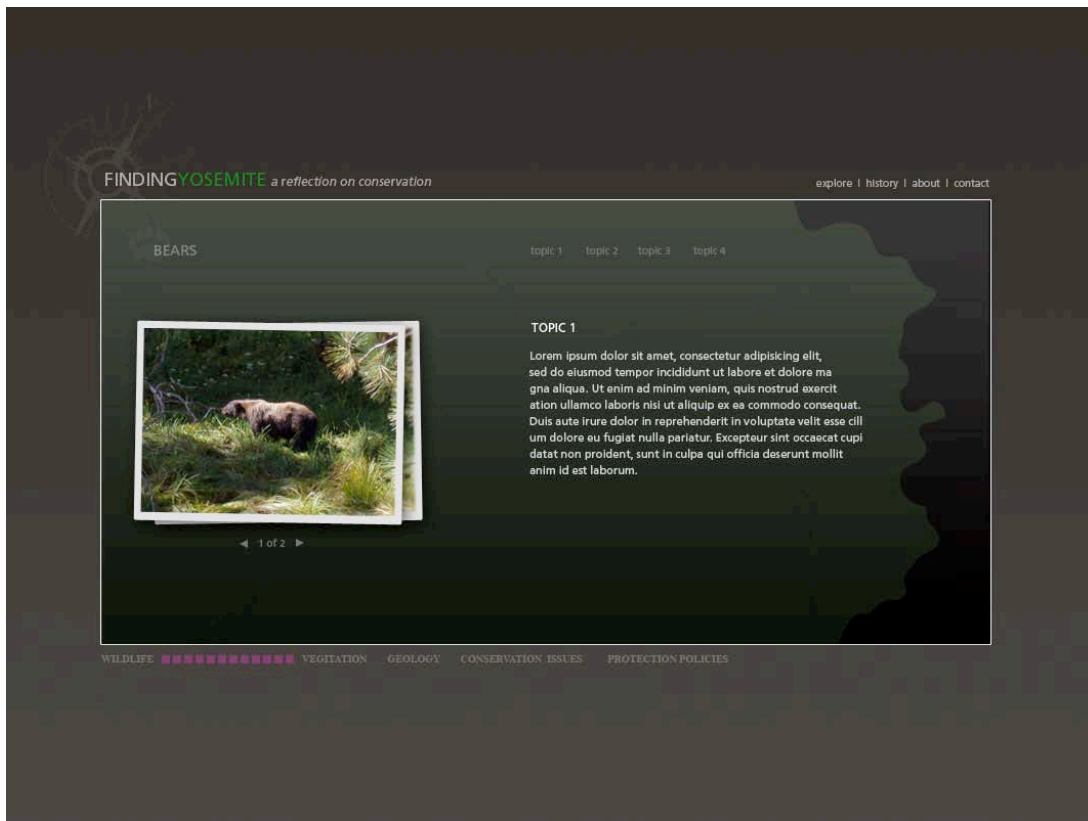
Early Photoshop Compositions



Interactive Map Compositions



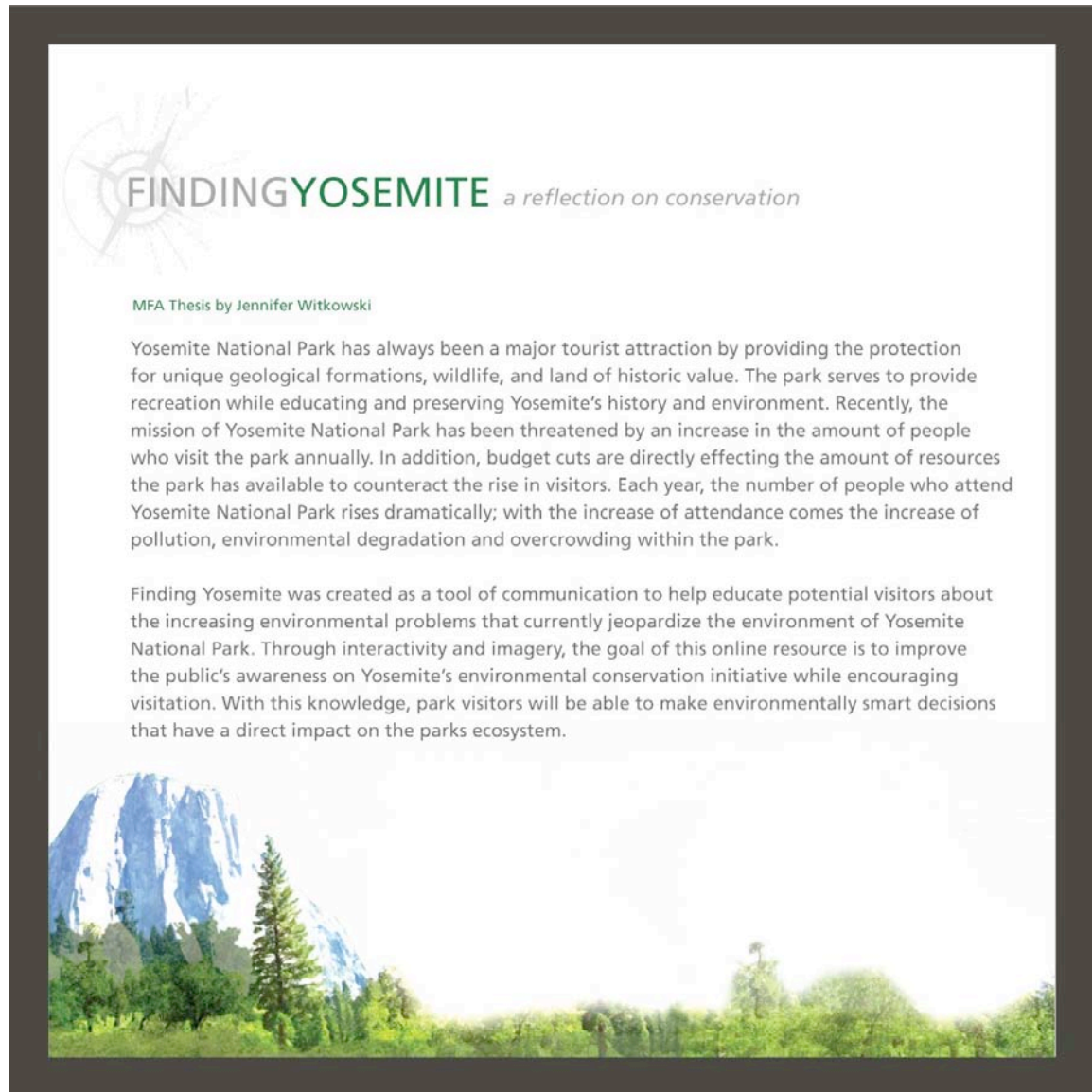
Compositions of informational panel



[illegible]

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Collateral Material





FINDING YOSEMITE *a reflection on conservation*

M.F.A. thesis by Jennifer Witkowski

<http://oas.it.edu/~jmw3590/yosemite>

Finding Yosemite is an interactive educational piece about the current conservation issues in Yosemite National Park. Visitors have an opportunity to explore related topics and learn about Yosemite's history.

